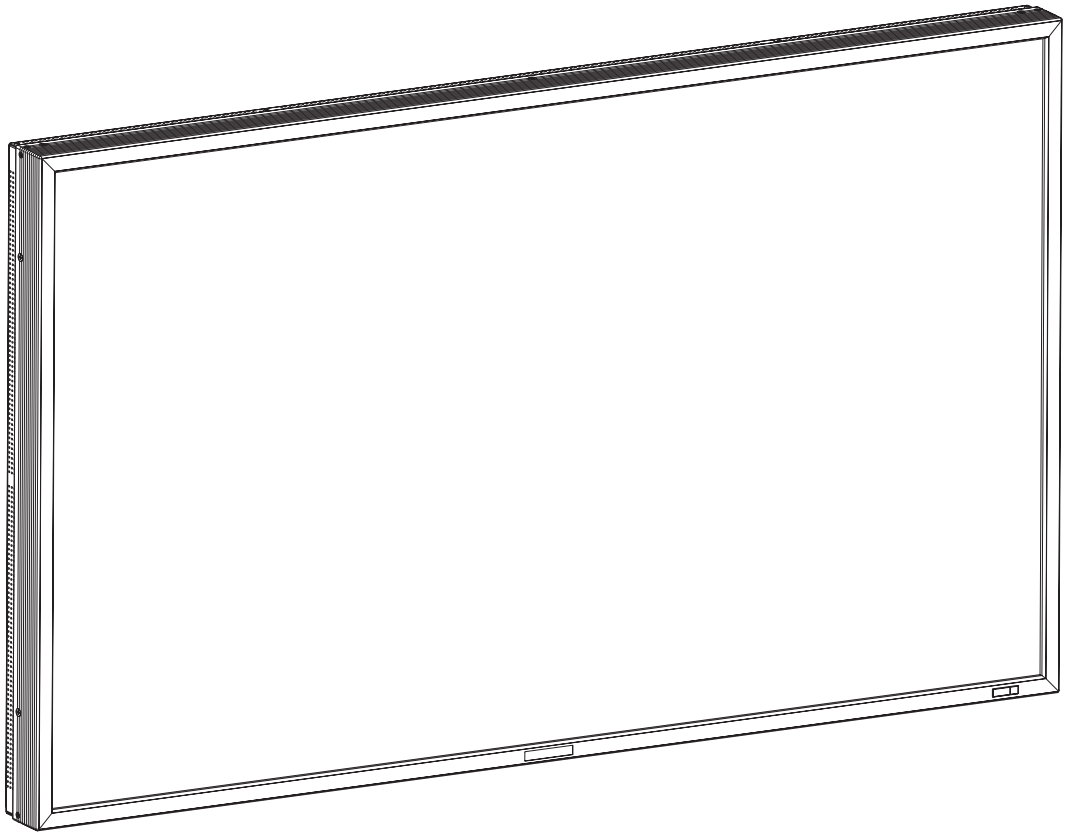
MITSUBISHI ELECTRIC

42" LCD Display Monitor

MDT421S (DR854)

USER'S MANUAL
BEDIENERHANDBUCH
MANUAL DEL USUARIO
MANUEL UTILISATEUR
MANUALE UTENTE
GEBRUIKERSHANDLEIDING
РУКОВОДСТВО ПОЛЬЗОВАТЕЛЯ



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Important Information

DECLARATION OF CONFORMITY

This device complies with Part 15 of FCC Rules. Operation is subject to the following two conditions. (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

U.S. Responsible Party:	**Mitsubishi Digital Electronics America, Inc.**
Address:	**9351 Jeronimo Road,**
	Irvine, California 92618 U.S.A.
Tel. No.:	**+1 - (949) 465-6000**
Type of Product:	Computer Monitor
Equipment Classification:	Class B Peripheral
Model:	MDT421S (DR854)

We hereby declare that the equipment specified above conforms to the technical standards as specified in the FCC Rules.

Windows is a registered trademark of Microsoft Corporation. All other brands and product names are trademarks or registered trademarks of their respective owners.
HDMI, the HDMI logo and High-Definition Multimedia Interface are trademarks or registered trademarks of HDMI Licensing LLC.
The DisplayPort Icon is a trademark of the Video Electronics Standards Association, registered in the U.S. and other countries.

Canadian Department of Communications Compliance Statement
DOC: This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.
C-UL: Bears the C-UL Mark and is in compliance with Canadian Safety Regulations according to CAN/CSA C22.2 No. 60950-1.

FCC Information

1. Use the attached specified cables with the MDT421S (DR854) color monitor so as not to interfere with radio and television reception.
   (1) Please use the supplied power cord or equivalent to ensure FCC compliance.
   (2) Please use the supplied shielded video signal cable, 15-pin mini D-SUB to 15-pin mini D-SUB.
2. This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules.
   These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses, and can radiate radio frequency energy, and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:
   - Reorient or relocate the receiving antenna.
   - Increase the separation between the equipment and receiver.
   - Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
   - Consult your dealer or an experienced radio/TV technician for help.

If necessary, the user should contact the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet, prepared by the Federal Communications Commission, helpful: “How to Identify and Resolve Radio-TV Interference Problems.” This booklet is available from the U.S. Government Printing Office, Washington, D.C., 20402, Stock No. 004-000-00345-4.

Important Information

WARNING

TO PREVENT FIRE OR SHOCK HAZARDS, DO NOT EXPOSE THIS UNIT TO RAIN OR MOISTURE. ALSO, DO NOT USE THIS UNIT'S POLARIZED PLUG WITH AN EXTENSION CORD RECEPTACLE OR OTHER OUTLETS UNLESS THE PRONGS CAN BE FULLY INSERTED.

REFRAIN FROM OPENING THE CABINET AS THERE ARE HIGH VOLTAGE COMPONENTS INSIDE.
REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

CAUTION

CAUTION

TO REDUCE THE RISK OF ELECTRIC SHOCK, MAKE SURE POWER CORD IS UNPLUGGED FROM WALL SOCKET. TO FULLY DISENGAGE THE POWER TO THE UNIT, PLEASE DISCONNECT THE POWER CORD FROM THE AC OUTLET. DO NOT REMOVE COVER (OR BACK). NO USER SERVICEABLE PARTS INSIDE. REFER SERVICING TO QUALIFIED SERVICE PERSONNEL.

This symbol warns user that uninsulated voltage within the unit may have sufficient magnitude to cause electric shock. Therefore, it is dangerous to make any kind of contact with any part inside this unit.

This symbol alerts the user that important literature concerning the operation and maintenance of this unit has been included. Therefore, it should be read carefully in order to avoid any problems.

CAUTION

This LCD Monitor uses a lamp that contains mercury. Disposal of the lamp or the LCD Monitor with the lamp may be regulated due to environmental considerations. For disposal or recycling information, please contact your local authorities or the Electronic Industries Alliance: www.eiae.org. (For US only).

Declaration

Declaration of the Manufacturer

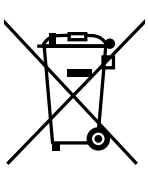
We hereby certify that the color monitor MDT421S (DR854)
is in compliance with
Council Directive 2006/95/EC:
– EN 60950-1
Council Directive 2004/108/EC:
– EN 55022
– EN 61000-3-2
– EN 61000-3-3
– EN 55024

and marked with

CE

Mitsubishi Electric Corporation
2-7-3, Marunouchi,
Chiyoda-Ku
Tokyo 100-8310, Japan

Declaration of the Manufacturer



Note: This symbol mark is for EU countries only.
This symbol mark is according to the directive 2002/96/EC Article 10 Information for users and Annex IV, and/or to the directive 2006/66/EC Article 20 Information for end-users and Annex II.
Your MITSUBISHI ELECTRIC product is designed and manufactured with high quality materials and components which can be recycled and/or reused.
This symbol means that electrical and electronic equipment, batteries and accumulators, at their end-of-life, should be disposed of separately from your household waste.
If a chemical symbol is printed beneath the symbol shown above, this chemical symbol means that the battery or accumulator contains a heavy metal at a certain concentration. This will be indicated as follows:
Hg: mercury (0,0005%), Cd: cadmium (0,002%), Pb: lead (0,004%)
In the European Union there are separate collection systems for used electrical and electronic products, batteries and accumulators.
Please, dispose of this equipment, batteries and accumulators correctly at your local community waste collection/recycling centre.
Please, help us to conserve the environment we live in!

Safety Precautions, Maintenance & Recommended Use

FOR OPTIMUM PERFORMANCE, PLEASE NOTE THE FOLLOWING WHEN SETTING UP AND USING THE LCD COLOR MONITOR:

- **DO NOT REMOVE MONITOR BACK COVER.** There are no user serviceable parts inside and opening or removing covers may expose you to dangerous shock hazards or other risks.
  Refer all servicing to qualified service personnel.
- Do not spill any liquids into the cabinet or use your monitor near water.
- Do not insert objects of any kind into the cabinet slots, as they may touch dangerous voltage points, which can be harmful or fatal or may cause electric shock, fire or equipment failure.
- Do not place any heavy objects on the power cord. Damage to the cord may cause shock or fire.
- Do not place this product on a sloping or unstable cart, stand or table, as the monitor may fall, causing serious damage to the monitor.
- When operating the LCD monitor with an AC 100-120V power supply in North America, use a power supply cord provided with this monitor.
- When operating the LCD monitor with an AC 220-240V power supply in Europe, use a power supply cord provided with this monitor.
- In UK, use a BS-approved power cord with molded plug having a black (10A) fuse installed for use with this monitor.
  If a power cord is not supplied with this monitor, please contact your supplier.
- When operating the LCD monitor with a 220-240V AC power supply in Australia, use the power cord provided with this monitor.
  If a power cord is not supplied with this monitor, please contact your supplier.
- For all other cases, use a power cord that matches the AC voltage of the power outlet and has been approved by and complies with the safety standard of your particular country.
- Do not place any objects onto the monitor and do not use the monitor outdoors.
- The inside of the fluorescent tube located within the LCD monitor contains mercury. Please follow the laws or rules of your municipality to dispose of the tube properly.
- Do not bend power cord.
- Do not use monitor in high temperature, humid, dusty, or oily areas.
- If monitor or glass is broken, do not come in contact with the liquid crystal and handle with care.
- If the LCD monitor is damaged and the liquid crystal leaks out, do not inhale or swallow it.
- Allow adequate ventilation around the monitor, so that heat can properly dissipate. Do not block ventilated openings or place the monitor near a radiator or other heat sources.
  Do not put anything on top of the monitor.
- The power cable connector is the primary means of detaching the system from the power supply. The monitor should be installed close to a power outlet, which is easily accessible.
- Handle with care when transporting. Save packaging for transporting.
- Please clean the holes of back cabinet to reject dirt and dust at least once a year because of set reliability.
- If using the cooling fan continuously, it's recommended to wipe holes a minimum of once a month.
- When installing the remote control batteries;
  - Align the batteries according to the (+) and (-) indications inside the case.
  - Align the (-) indication of the battery first inside the case.

CAUTION:

Immediately unplug your monitor from the wall outlet and refer servicing to qualified service personnel under the following conditions:

- When the power supply cord or plug is damaged.
- If liquid has been spilled, or objects have fallen into the monitor.
- If the monitor has been exposed to rain or water.
- If the monitor has been dropped or the cabinet damaged.
- If the monitor does not operate normally by following operating instructions.

Recommended Use

CAUTION:

- For optimum performance, allow 20 minutes for warm-up.
- Rest your eyes periodically by focusing on an object at least 5 feet away. Blink often.
- Position the monitor at a 90° angle to windows and other light sources to minimize glare and reflections.
- Clean the LCD monitor surface with a lint-free, non-abrasive cloth. Avoid using any cleaning solution or glass cleaner!
- Adjust the monitor's brightness, contrast and sharpness controls to enhance readability.
- Avoid displaying fixed patterns on the monitor for long periods of time to avoid image persistence (after image effects).
- Get regular eye checkups.

Ergonomics

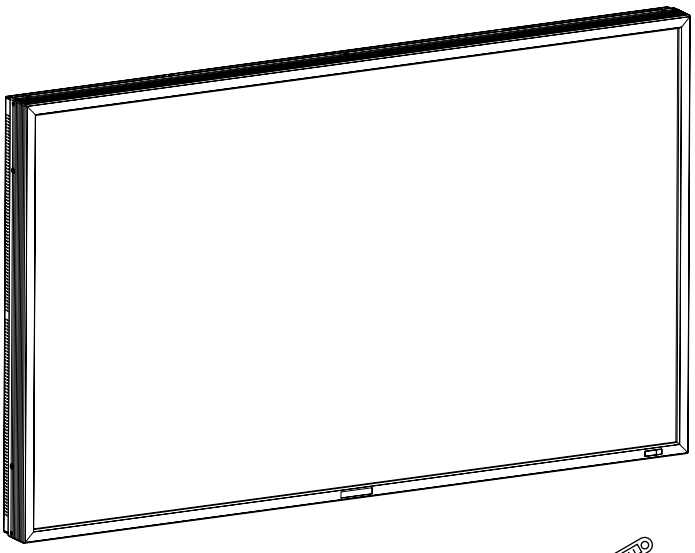
To realize the maximum ergonomic benefits, we recommend the following:

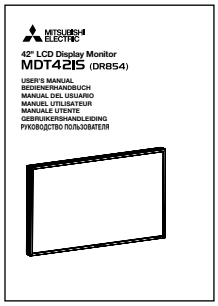
- Use the preset Size and Position controls with standard signals.
- Use the preset Color Setting.
- Use non-interlaced signals.
- Do not use primary color blue on a dark background, as it is difficult to see and may produce eye fatigue due to insufficient contrast.

Contents

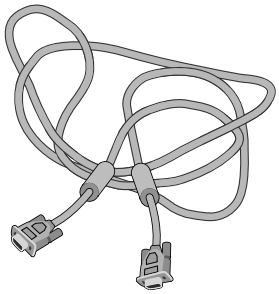
Your new MDT421S monitor box* should contain the following:

- LCD monitor
- Power Cord (3 m)
- Video Signal Cable (4 m)
- User's Manual
- Wireless Remote Control and AAA Batteries
- Clamper x 2 (To prevent from falling)
- Clamper x 3 (For securing cables)
- Clamper x 2 (For securing the power cord, HDMI cable, and Display Port cable)
- Screw for Clamper (To prevent from falling) x 2





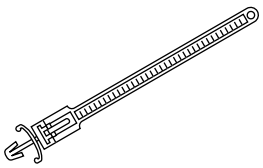
User's Manual



Video Signal Cable
(D-SUB to D-SUB Cable)

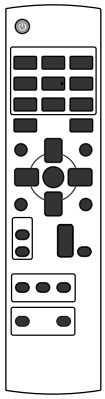
Screw for Clamper
(M4) x 2

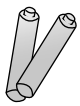
Clamper x 3
(For securing cables)



Clamper x 2
(For securing the power cord,
HDMI cable, and Display Port cable)

Clamper x 2
(To prevent from falling)





Wireless Remote Control
and AAA Batteries

* The supplied power cord varies depending on destination.

For EU

For North
America

Power cord

* For all other case, use a power cord that matches the AC voltage of the power outlet and has been approved by and complies with the safety standard of your particular country.

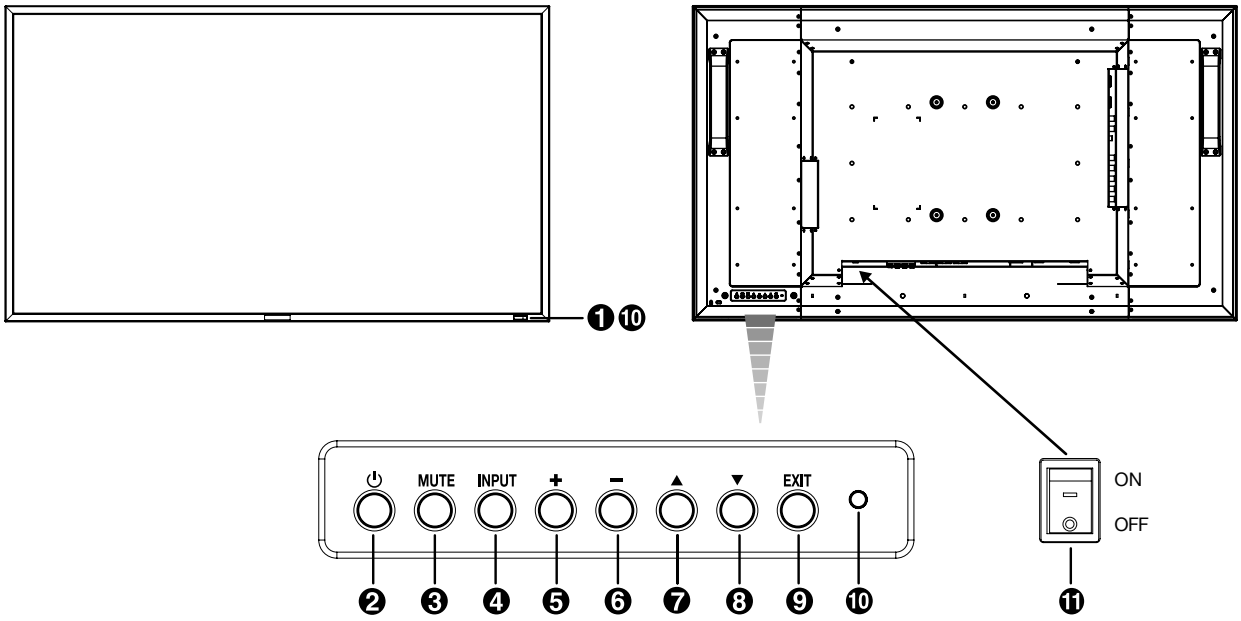
* Remember to save your original box and packing material to transport or ship the monitor.

The following components are prepared as option.

- External Speakers
- Stands
- Bezel
- CAT5 Kit

Parts Name and Functions

Buttons, Switch, and Indicator



❶ Remote control sensor and Power indicator

Receives the signal from the remote control (when using the wireless remote control). See also page 9.
Glows green when the LCD monitor is in active and glows red when the LCD is in POWER OFF mode. When the LCD is in power save mode, it will glow both green and red. When SCHEDULE is enabled, it will blink green and glow red. See page 21. In the case of where a failure is detected, it will blink red.

❷ POWER button (⏻)

Switches the power on/off. See also page 20.

❸ MUTE button

Switches the audio mute ON/OFF.

❹ INPUT button

Displays the OSD menu for switching the video input. (Select [RGB1], [RGB2], [RGB3], [RGB4], [RGB5]*, [RGB6], [DVD/HD], [VIDEO<S>] and [VIDEO] using the UP (▲) and DOWN (▼) buttons.)

* : [RGB 5] becomes usable when the optional CAT5 Rx BOX is mounted.

By pressing this button while the OSD menu is being displayed, you can move forward through the menu items. (See page 23.)

❺ PLUS (+) button

Acts as (+) button to increase the adjustment with OSD menu. Increase the audio output level when the OSD menu is turned off.

❻ MINUS (-) button

Acts as (-) button to decrease the adjustment with OSD menu. Decreases the audio output level when the OSD menu is turned off.

❼ UP (▲) button

Activates the OSD menu when the OSD menu is turned-off. Acts as ▲ button to move the highlighted area up to select the adjustment with OSD menu.

❽ DOWN (▼) button

Activates the OSD menu when the OSD menu is turned-off. Acts as ▼ button to move the highlighted area down to select the adjustment with OSD menu.

❾ EXIT button

Press the EXIT button to display the OSD menu while it isn't being displayed.
By pressing this button while the OSD menu is being displayed, you can move backward through the menu items. (You can move forward through the menu items using the INPUT button.) When you press this button at the Main Menu, the OSD menu disappears. (See page 23.)

❿ Brightness sensor (front, rear)

Sensor for the auto brightness function. (See page 25, 33.)

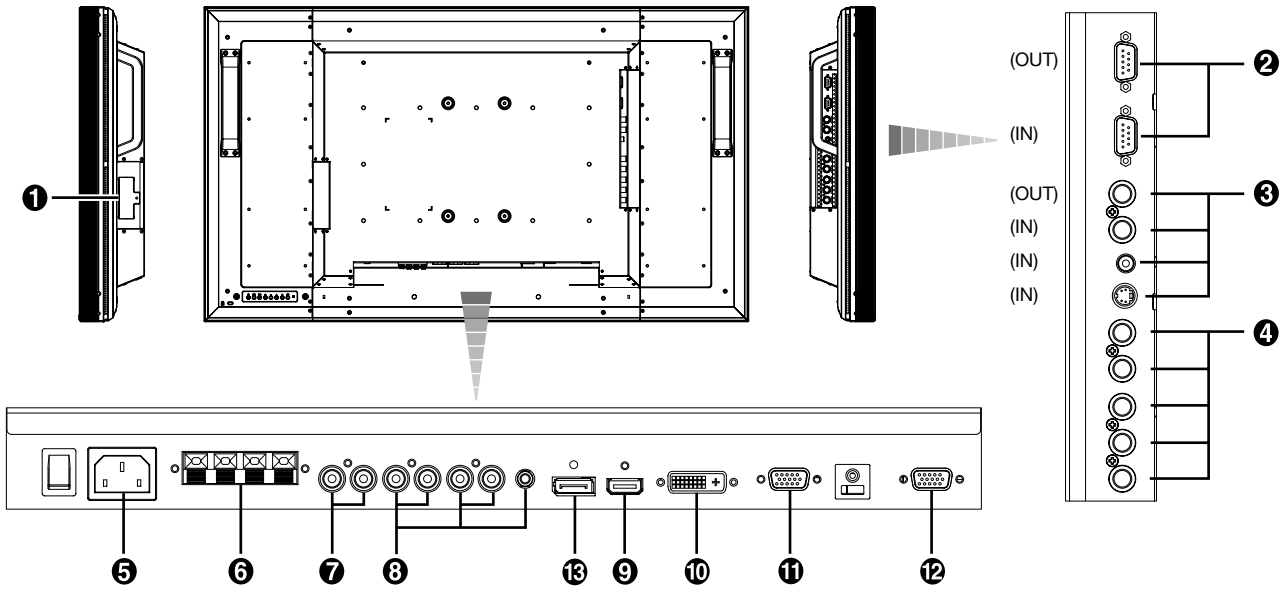
⓫ Main Power Switch

On/Off Switch to turn main power on/off.

NOTE: Control Key Lock Mode

This control completely locks out access to all Control Key functions. To activate the control key lock function, press both of "▲" and "▼" and hold down simultaneously for more than 3 seconds. To resume back to user mode, press both of "▲" and "▼" and hold simultaneously for three (3) seconds.

Connectors and Terminals



❶ CAT5 Rx BOX slot

The CAT5 Rx BOX (option) is inserted in this slot. (See page 12.)

NOTE:

Never connect network devices to the CAT5 IN and OUT connectors. If you do so, they may adversely affect with each other, causing breakdown.

❷ EXTERNAL CONTROL (mini D-Sub 9 pin)

Connect the IN connector with the RS-232C OUT connector of the computer or a multi-connected MDT421S monitor. Connect the OUT connector with the RS-232C IN connector of a multi-connected MDT421S or MDT521S monitor.

❸ VIDEO IN/OUT

VIDEO IN connector (BNC and RCA): To input a composite video signal. BNC and RCA are not available at the same time. (Use only one input).

VIDEO OUT connector (BNC): To output the composite video signal from VIDEO IN connector.

S-VIDEO IN connector (MINI DIN 4 pin): To input the S-video (Y/C separate signal).

❹ RGB 4 IN / DVD/HD IN (BNC)

To input the analog RGB signals from a computer or other RGB equipment.

Connecting equipment such as a DVD player, HDTV device, or Laser disc player. See page 16, 18.

❺ AC IN connector

Connects with the supplied power cord.

❻ EXTERNAL SPEAKER TERMINAL

To output the audio signal for external speakers from AUDIO 1, 2, 3 jack or HDMI.

❼ AUDIO OUT

To output the audio signal from the AUDIO IN 1, 2, 3 jack or HDMI.

❽ AUDIO IN 1, 2, 3

To input the audio signal from external equipment such as a computer, VCR or DVD player.

❾ RGB 1 IN (HDMI)

To input the digital RGB signals from a computer, DVD player, etc.

* This connector does not support analog input. AUDIO is supported via HDMI.

❿ RGB 2 IN (DVI-D)

To input the digital RGB signals from a computer.

* This connector does not support analog input. AUDIO is supported via DVI-D.

⓫ RGB 3 IN (mini D-Sub 15 pin)

To input the analog RGB signals from a computer or other RGB equipment.

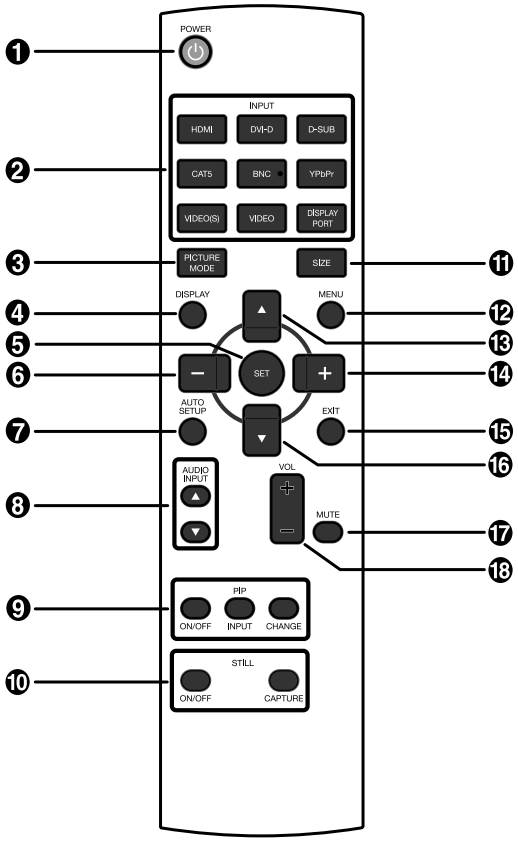
⓬ RGB OUT (mini D-Sub 15 pin)

To output the signal from RGB 3, 4 or 5 IN.

⓭ RGB 6 IN (DISPLAY PORT)

To input the digital RGB signals from a computer.

Wireless Remote Control



❶ POWER button

Switches the power on/off.

* If LED Power Indicator on the monitor is not glowing, then no controls will work.

❷ INPUT button

Selects from input signal, [RGB1] (HDMI), [RGB2] (DVI-D), [RGB3] (D-SUB), [RGB4] (BNC), [RGB5]* (CAT5), [RGB6] (DISPLAY PORT), [DVD/HD] (YPbPr), [VIDEO<S>] and [VIDEO].

* : [RGB 5] becomes usable when the optional CAT5 Rx BOX is mounted.

❸ PICTURE MODE button

Selects from picture mode, [HIGHBRIGHT], [STANDARD], [sRGB], [CINEMA]. See page 21.

HIGHBRIGHT: for moving image such as Video
STANDARD: for images (Factory setting)
sRGB: for text based images
CINEMA: for movies

❹ DISPLAY button

To switch the information OSD on/off. See page 22.

❺ SET button

Acts as SET button with OSD menu.

❻ MINUS button decrease

Acts as (-) button to decrease the adjustment with OSD menu.
Small screen which adjusted “PIP” mode moves left.

❼ AUTO SETUP button

To enter the auto setup menu. See page 28.

❽ AUDIO INPUT button

Press to change the audio source for each video source. The audio source is changed from [AUDIO1] to [AUDIO2], [AUDIO3] and [HDMI] in order. Note that you cannot select the audio source for [VIDEO<S>] or [VIDEO]. [HDMI] is selectable only when the video source is [RGB 1].

❾ PIP (Picture In Picture) button

ON/OFF button: PIP-ON/OFF. See page 27, 33.
INPUT button: Select the “picture in picture” input signal.
CHANGE button: Replaces to the main picture and sub picture.

Note:

The “PIP” and “POP” modes do not function when the screen size is “CUSTOM” or “REAL”.

❿ STILL button

ON/OFF button: To switch the still picture mode on/off.
CAPTURE button: Updates the still picture.

⓫ SIZE button

Selects picture size, [FULL], [NORMAL], [CUSTOM] , [DYNAMIC] and [REAL]. See page 21.

⓬ MENU button

To switch the menu mode on/off.

⓭ UP button

Acts as ▲ button to move the highlighted area up to select the adjustment with OSD menu.
Small screen which adjusted “PIP” mode moves up.

⓮ PLUS button increase

Acts as (+) button to increase the adjustment with OSD menu.
Small screen which adjusted “PIP” mode moves right.

⓯ EXIT button

Turn to previous menu with OSD menu.

⓰ DOWN button

Acts as ▼ button to move the highlighted area down to select the adjustment with OSD menu.
Small screen which adjusted “PIP” mode moves down.

⓱ MUTE button

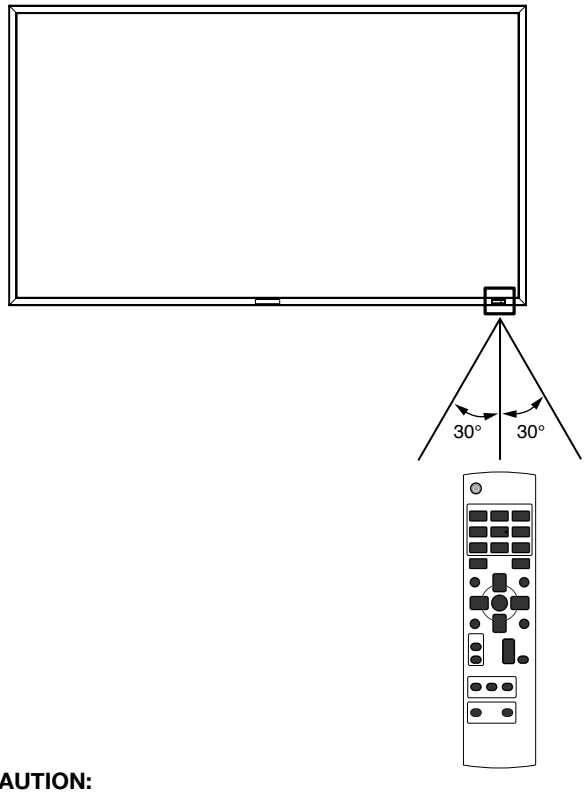
To switch the mute function on/off.

⓲ VOLUME button

Increases or decreases the audio output level.

< Operating Range for the Remote Control >

Point the top of the remote control toward the LCD monitor's remote sensor during button operation.
Use the remote control within a distance of about 7 m/23 ft. from the front of the LCD monitor's remote control sensor and at a horizontal and vertical angle of within 30° within a distance of about 3 m/10 ft.



CAUTION:
Important, the remote control system may not function when direct sunlight or strong illumination strikes the remote control sensor of the LCD monitor, or when there is an object in the path.

< Handling the remote control >

* Do not subject to strong shock.
* Do not allow water or other liquid to splash the remote control. If the remote control gets wet, wipe it dry immediately.
* Avoid exposure to heat and steam.
* Other than to install the batteries, do not open the remote.

Setup Procedure

1. Determine the installation location

CAUTION:
DO NOT ATTEMPT TO INSTALL THE LCD MONITOR BY YOURSELF.
Installing your LCD display must be done by a qualified technician. Contact your dealer for more information.

CAUTION:
MOVING OR INSTALLING THE LCD MONITOR MUST BE DONE BY TWO OR MORE PEOPLE.
Failure to follow this caution may result in injury if the LCD monitor falls.

CAUTION:
Do not mount or operate the display upside down or face down.

CAUTION:
Do not install the LCD monitor where it will be exposed to direct sunlight, as this will result in display defects.

CAUTION:
This LCD has a temperature sensor and cooling fan. If the LCD becomes too hot, the cooling fan will turn on automatically. If the LCD becomes overheated and the cooling fan is running, the “Caution” menu will appear. If the “Caution” menu appears, discontinue use and allow the unit to cool. When the LCD monitor is used in an enclosure or with protection on LCD surface, please check the inside temperature of monitor by “HEAT STATUS” (See page 31). The temperature is too hot than normal condition, please set “cooling fan” to ON on SCREEN SAVER function (See page 28).

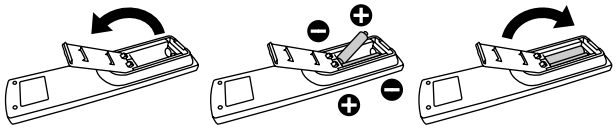
IMPORTANT:
Lay the protective sheet, which was wrapped around the LCD monitor when it was packaged, beneath the LCD monitor so as not to scratch the panel.

2. Installing and removing the remote control batteries

The remote control is powered by 1.5V AAA batteries.
To install or replace batteries:

How to install the batteries

1. Unlock and pull up the cover in the arrow’s direction.
2. Align the batteries according to the (+) and (–) indications inside the case.
3. Replace the cover.



How to remove the batteries

1. Unlock and pull up the cover in the arrow’s direction.
2. Remove the batteries.

CAUTION:
Incorrect use of batteries can result in leaks or bursting.
Be careful especially about the following points.

- Place “AAA” batteries matching the + and - signs on each battery to the + and - signs of the battery compartment.
- Do not mix battery types.
- Do not combine new batteries with used ones. It causes shorter battery life or leakage of batteries.
- Remove dead batteries immediately to prevent battery liquid from leaking into the battery compartment. Don't touch exposed battery acid, it cause damage to your skin.

NOTE:
If you do not intend to use the Remote Control for a long period, remove the batteries.

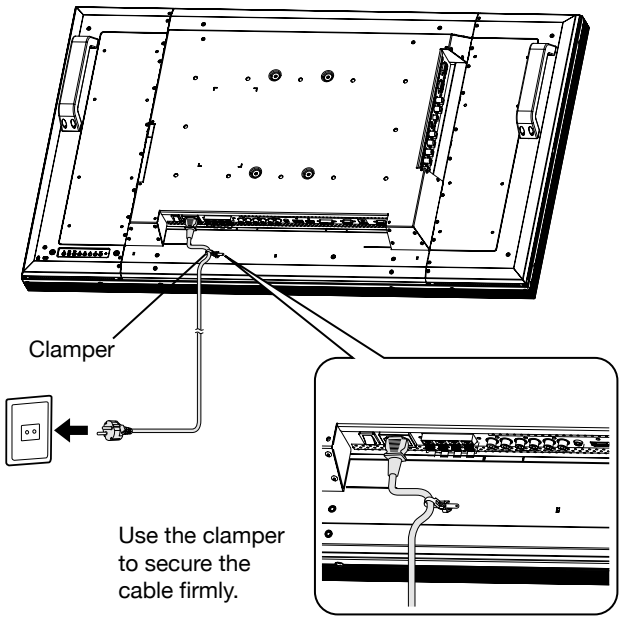
3. Connect external equipment (See pages 15-19)

- To protect the connected equipment, turn off the main power before making connections.
- Refer to your equipment user manual.

4. Connect the supplied power cord

- The power outlet socket should be installed as near to the equipment as possible, and should be easily accessible.
- Fully insert the prongs into the power outlet socket. Loose connection may cause noise.

NOTE:
Please refer to “Safety Precautions, Maintenance & Recommended Use” section of this manual for proper selection of AC power cord.



5. Switch on the power of all the attached external equipment

When connected with a computer, switch on the power of the computer first.

6. Operate the attached external equipment

Display the signal on the external equipment you wish.

7. Adjust the sound

Make adjustments lowering or rising the volume as required.

8. Adjust the screen (See pages 24-34)

Make adjustments to the display position or settings if required.

9. Adjust the image (See pages 24-34)

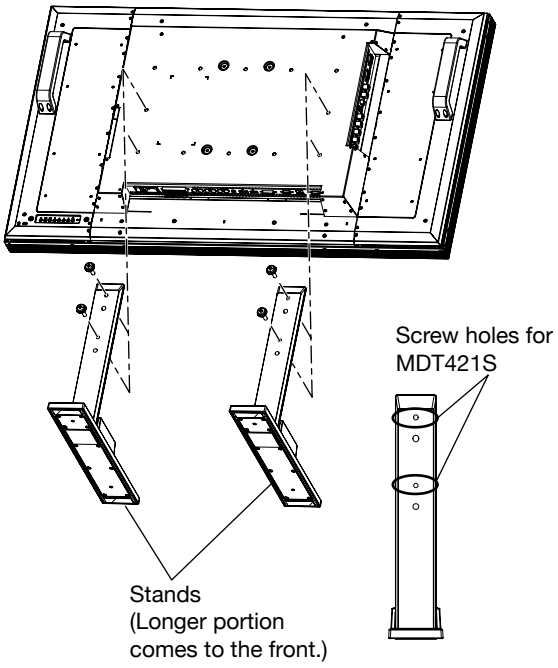
Make adjustments to brightness or contrast if required.

10. Recommended Adjustment

To reduce the risk of “image persistence”, please adjust the following items based on the application being used. “POWER SAVE” (See page 28), “SCREEN SAVER” (See page 28), “SIDE BORDER COLOR”(See page 28), “DATE AND TIME” (See page 31), “SCHEDULE”(See page 31).

11. Installing and removing the stands

The stands are prepared as option.
Refer to the user’s manual of the stand for more information.



How to install the stands

1. Please turn monitor off.
2. Fasten screws on both sides of the monitor.

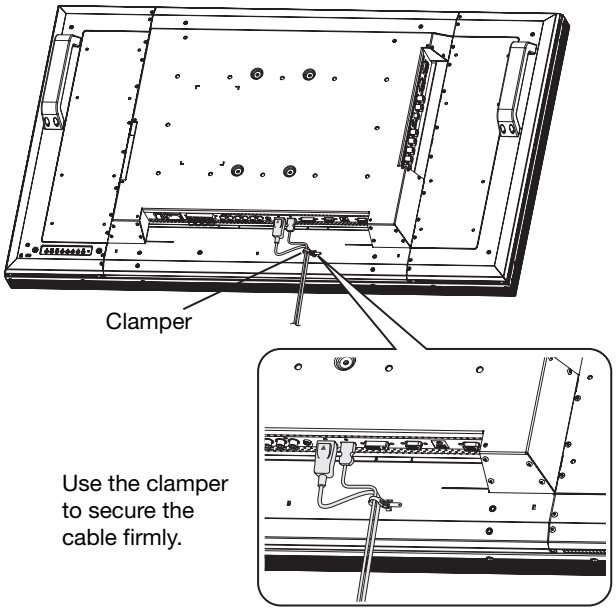
NOTE:

Install the stands so that their longer portions come to the front.

How to remove the stands

1. Spread the protective sheet on the flat surface, such as a desk.
2. Place monitor on the protective sheet.
3. Remove screws with a screwdriver and place them in a safe place for reuse.

12. Connecting HDMI cable and Display Port cable



13. When MDT421S is installed in portrait position

Conditions

MDT421S can be installed in portrait position, under the following conditions:

Caution:

Portrait position is effective only when wall-mounted or ceiling-mounted.

The stands (legs) can not be fitted to the monitor in portrait position.

Placing the monitor in portrait position, will shorten the average life of the LCD backlight.

Operational Environment (Temperature) shall be limited, as shown below:

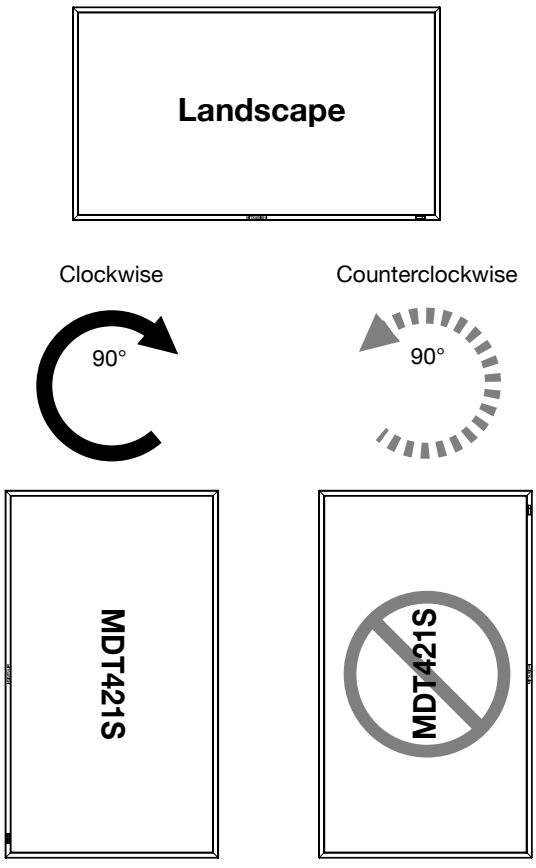
Operational Environment:

Temperature	5 - 35 °C / 41 - 95 °F
Humidity	20 - 80 % (without condensation)

Please orientate the monitor in the direction shown below:
Do not place monitor in landscape in any other manner.
Optional speakers (SP-421S) can not be attached when this LCD monitor is installed in portrait position.

How to set-up

The "MITSUBISHI" logo should be on the LEFT side when facing the monitor.



14. For long-distance connection using the CAT5 Kit

NOTE:

The CAT5 Kit is an option designed for MDT421S. For the detailed mounting procedure, see the user's guide for the CAT5 Kit (option).

CAT5 video connection

The CAT5 video connection function is for transmitting the analog RGB video signal of the computer and the control signal of the monitor over a long distance using CAT5 cables. The computer can control the monitor via the optional CAT5 Tx BOX and the CAT5 Rx BOX that is mounted on MDT421S.

Caution:

Never connect network devices (such as a hub and a computer for LAN) to the CAT5 IN and OUT connectors of the CAT5 Kit. If they are connected, the network devices themselves, CAT5 Tx BOX, CAT5 Rx BOX, and monitor may be damaged.

1. Installation of the USB driver for CAT5 serial communication control

To connect the computer and the CAT5 Tx BOX via USB interface, it is necessary to install the USB driver to the computer from the CD-ROM supplied with the CAT5 Kit (option).
(When connecting the computer and the CAT5 Tx BOX via RS-232C interface, you don't have to install the USB driver.)

OS supported: Windows® XP, Windows Vista®

How to install:

1) Installation to Windows® XP

Start the "PL2303-Driver_XP2K_v******.exe" file in the Windows XP folder on the CD-ROM supplied with the CAT5 Kit (option) and install the driver according to the instructions displayed on the screen.

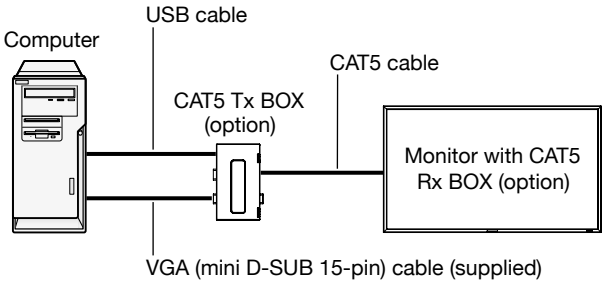
2) Installation to Windows Vista®

Start the "PL2303_Prolific_Vista_******.exe" file in the Windows VISTA folder on the CD-ROM supplied with the CAT5 Kit (option) and install the driver according to the instructions displayed on the screen.

2. Connection of the CAT5 video connection function

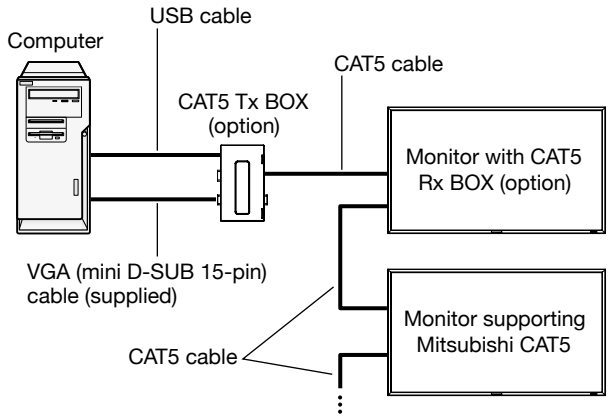
There are two cases of connection.

1) Connection to one monitor



1. Connect the USB connector of the supplied CAT5 Tx BOX and that of the computer using a commercially available USB cable. (When the USB driver isn't available, connect an RS-232C cable in addition to the USB cable. In this case, the USB cable serves for supplying the power to the CAT5 Tx BOX.) See page 35.
2. Connect the D-SUB input connector of the CAT5 Tx BOX and the VGA (D-SUB) output connector of the computer using the signal cable (mini D-SUB 15-pin cable) supplied with the monitor.
3. Connect the modular connector of the CAT5 Tx BOX and the CAT5 (RGB5) IN connector of the CAT5 Rx BOX using a commercially available CAT5 cable.

2) Connection to multiple monitors



1. In addition to the connection made step 1) above, connect the CAT5 OUT connector of the first monitor and the CAT5 (RGB5) IN connector of the second monitor using a commercially available CAT5 cable.
2. Connect the third and later monitors in the same way. You can connect up to 5 monitors.

Allowable cable length

Connection	Max. cable length/signal timing
One monitor	150 m / 1920 x 1080 @60 Hz
Multiple monitors	200 m / 1920 x 1080 @60 Hz (Total length of the connected cables)

The lengths given above are based on the actual measurements using our standard signal source and the recommended cable as follows. Before installation, check the monitor operation in advance by connecting it with your computer and cables.

Recommended cable:
8-pin modular connector, straight-through, shielded, Category 5 or 5e
Commercially available cables that passed the compatibility test (Tested with shielded connectors commercially available.):
7929A of Belden, NFTP-C5e-GY of Nex1

3. Various settings involved in the CAT5 video connection

In the case of the CAT5 video connection, configure the following settings displayed on the OSD screen. (See page 29.)

1) CAT5 CABLE LENGTH

Select the cable length, and the defaults of all the adjustment values are automatically determined.
Select the length that is closest to the actual length of your cable.

2) CAT5 EQ

Make adjustment so that blur and smear of the displayed letters and graphic objects are minimized.

3) CAT5 R-GAIN/G-GAIN/B-GAIN

When the displayed image is dark, increase each value.
When whites aren't displayed as intended, adjust the R-GAIN and B-GAIN values.

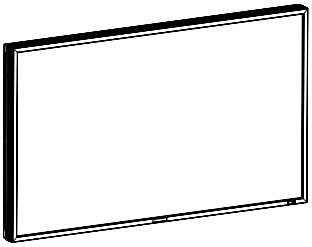
4) CAT5 R-SKEW/G-SKEW/B-SKEW

Adjust each value so that the color deviation in the displayed letters and graphic objects is minimized.

How to Mount and Attach Options to the LCD Monitor

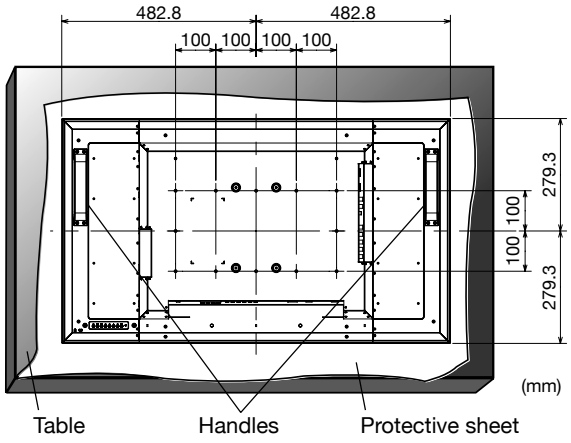
You can attach mounting accessories to the LCD monitor in one of the following two ways:

1. In the upright position



2. Lay the screen face down

Lay the protective sheet on a table, which was wrapped around the monitor when it was packaged, beneath the screen surface so as not to scratch the screen face.
This device cannot be used or installed without the Tabletop Stand or other mounting accessory. Failure to follow correct mounting procedures could result in damage to the equipment or injury to the user or installer. Product warranty does not cover damage caused by improper installation.
Failure to follow these recommendations could result in voiding your warranty.
Use M6 screws (having a length 10 mm longer than the thickness of the mounting bracket) and tighten them securely.
Prevent the screws from loosening using spring washers, etc. MITSUBISHI ELECTRIC recommends using mounting interface that comply with TÜV-GS and/or UL1678 standard in North America.



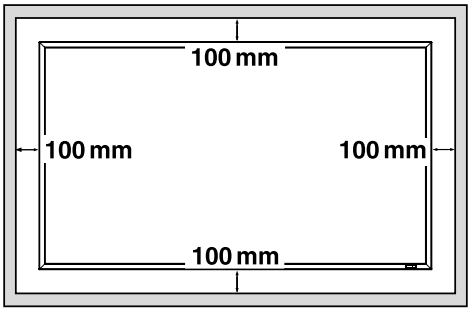
Caution:

For preventing the monitor from falling.

- Install the monitor with metal brackets for wall or ceiling installation (commercially available) on your own responsibility. For detailed procedures of installation, refer to the instructions of the metal brackets.
- To lessen the probability of injury and damage resulting from fall of the monitor in case of earthquake or other disaster, be sure to consult the bracket manufacturer for installation location.
- To lessen the risk of falling of the monitor, thread commercially available rope through the handles at the right and left of the monitor and secure the rope to the wall mount brackets or ceiling mount brackets.
- Do not sleep where the monitor may topple over or fall in case of an earthquake or other disaster.

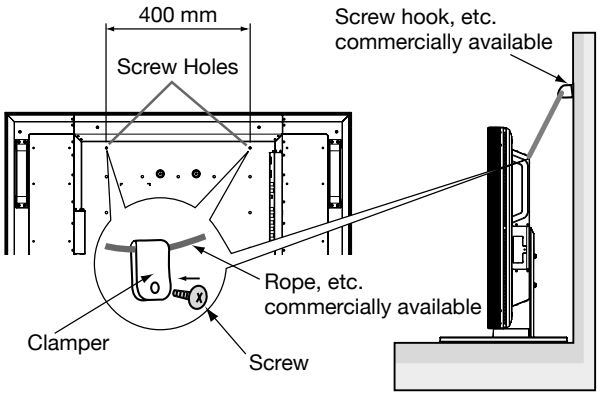
3. Ventilation Requirements for enclosure mounting

To allow heat to disperse, leave space between surrounding objects as shown in the diagram below.



4. To avoid monitor from falling

When installing the monitor using the tabletop stands (optional), take measures to prevent the monitor from falling over in case of an earthquake or other disaster to lessen the probability of injury and damage resulting from fall.
As shown in the figure, secure the monitor to a solid wall or pillar using rope (commercially available) strong enough to bear the weight of the monitor. (MDT421S: approx. 27 kg (with the optional stands))
When you use screw hooks (commercially available), ring screw hooks, not C-shaped screw hooks (with opening), are recommended.



Caution:

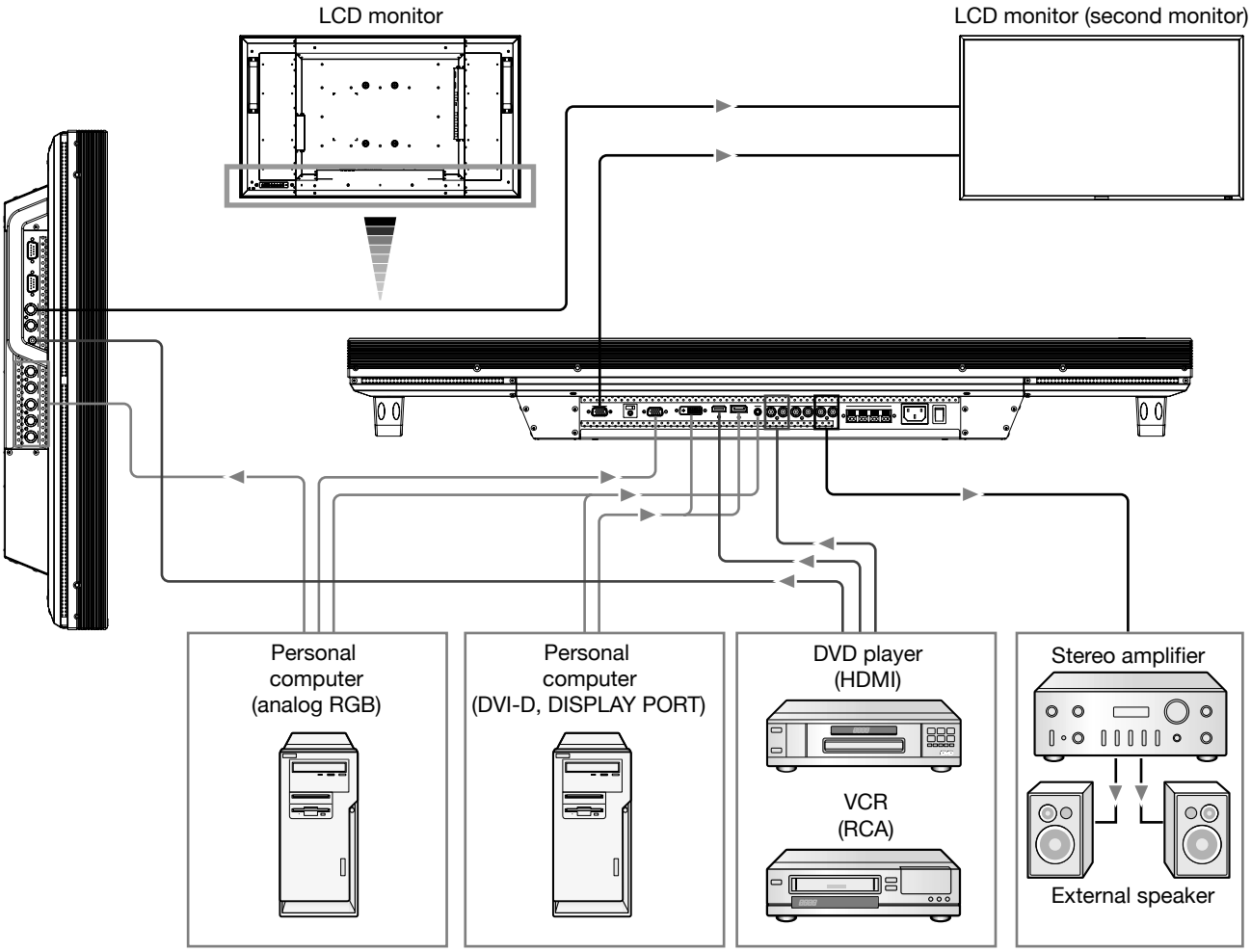
- The effectiveness of preventing from falling substantially depends on the strength of brackets and base to which prevention device from falling is attached. When you cannot ensure sufficient strength, provide adequate reinforcement.
- Though the recommended prevention from falling is intended to lessen the probability of injury and damage, it doesn't assure its effectiveness against any kind of earthquake or disaster.
- Do not sleep where the monitor may topple over or fall in case of an earthquake or other disaster.
- Before moving the monitor, remove the rope that is securing the monitor. Failure to do so may result in injury or breakdown of the monitor.

Connections

Before making connections:

* First turn off the power of all the attached equipment and make connections.
* Refer to the user manual included with each separate piece of equipment.

Wiring Diagram

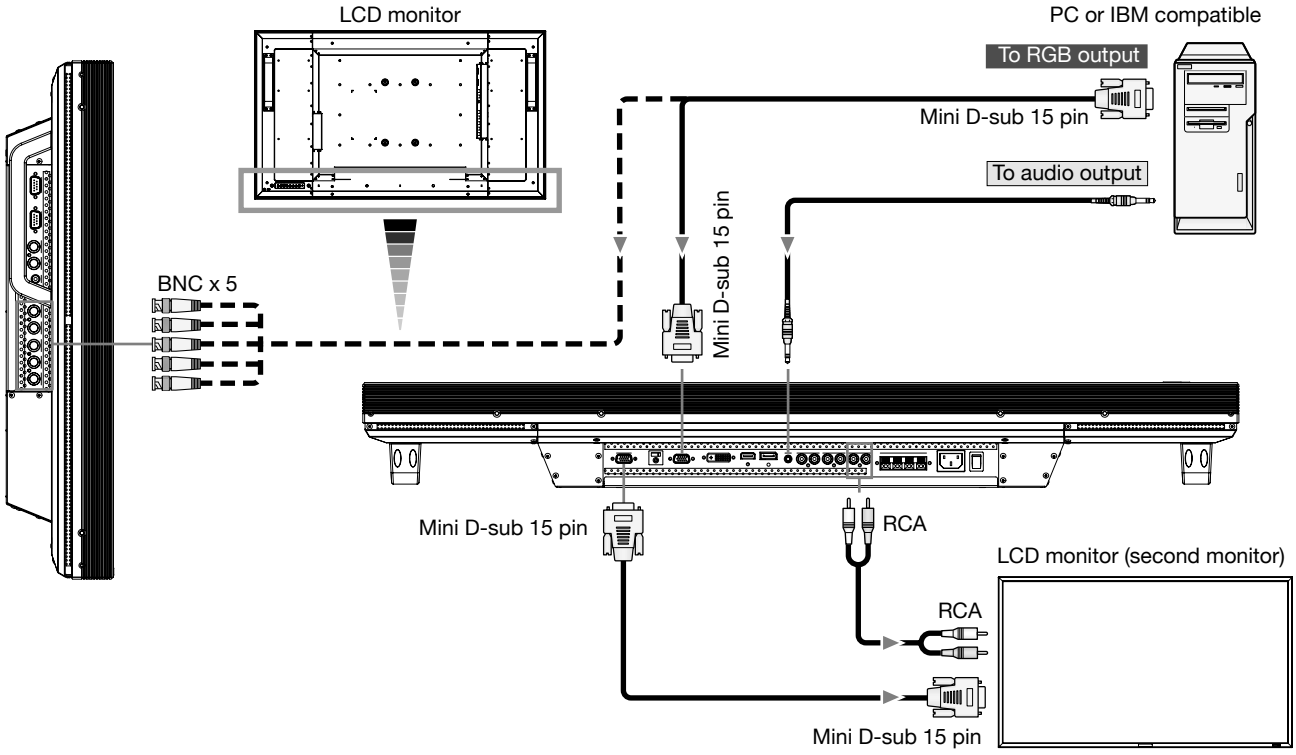


Connecting a Personal Computer

By connecting your computer to your LCD monitor, you can display images on your computer's screen.
Some video cards may not display an image correctly.

Connect the LCD Monitor to a Personal Computer

- To connect the computer to the RGB 3 IN connector (mini D-sub 15 pin) on the LCD monitor, use the supplied RGB signal cable (mini D-sub 15 pin to mini D-sub 15 pin).
  Select “RGB 3” using the INPUT button on the LCD monitor or the D-SUB button on the remote control.
- To connect the computer to the RGB 4 IN connector (BNC) on the LCD monitor, use a signal cable (mini D-sub 15 pin to BNC x 5).
  Select “RGB 4” using the INPUT button on the LCD monitor or the BNC button on the remote control.
- For audio input, select AUDIO IN 1, 2, or 3 using the AUDIO INPUT button.
- To connect a second LCD monitor, use the RGB OUT connector (mini D-sub 15 pin). (The RGB 3, RGB 4, or RGB 5 (option) signal selected by the first LCD monitor is output.)
- To output audio to the second LCD monitor, use the AUDIO OUT connector.

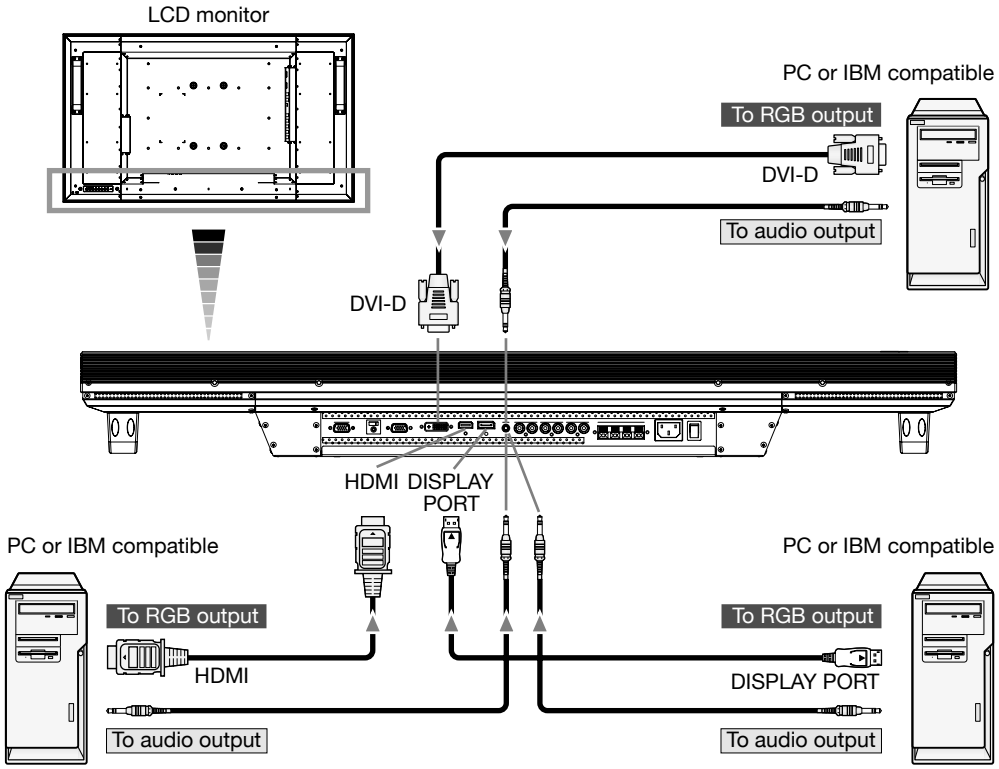


Connecting with Digital Interface Equipment

Connections can be made with equipment that is equipped with a digital interface compliant with the DVI (Digital Visual Interface) standard.

Connect the LCD Monitor to a Computer with a Digital Output

- To connect the computer to the RGB 2 IN connector (DVI-D) on the LCD monitor, use a DVI-D cable.
  Select “RGB 2” using the INPUT button on the LCD monitor or the DVI-D button on the remote control.
  Set DVI INPUT MODE to “DVI-PC.” (See page 31.)
- To connect the computer to the RGB 1 IN connector (HDMI) on the LCD monitor, use an HDMI cable.
  Select “RGB 1” using the INPUT button on the LCD monitor or the HDMI button on the remote control.
  Set HDMI INPUT MODE to “HDMI-PC.” (See page 31.)
- To connect the computer to the RGB 6 IN connector (DISPLAY PORT) on the LCD monitor, use a Display Port cable.
  Select “RGB 6” using the INPUT button on the LCD monitor or the DISPLAY PORT button on the remote control.
- For audio input, select AUDIO IN 1, 2, or 3 or HDMI using the AUDIO INPUT button. (HDMI is selectable only when the video input is “RGB 1.”)
- The signals input from the RGB 1 (HDMI), RGB 2 (DVI-D) and RGB 6 (DISPLAY PORT) connectors aren’t output to the RGB OUT connector.

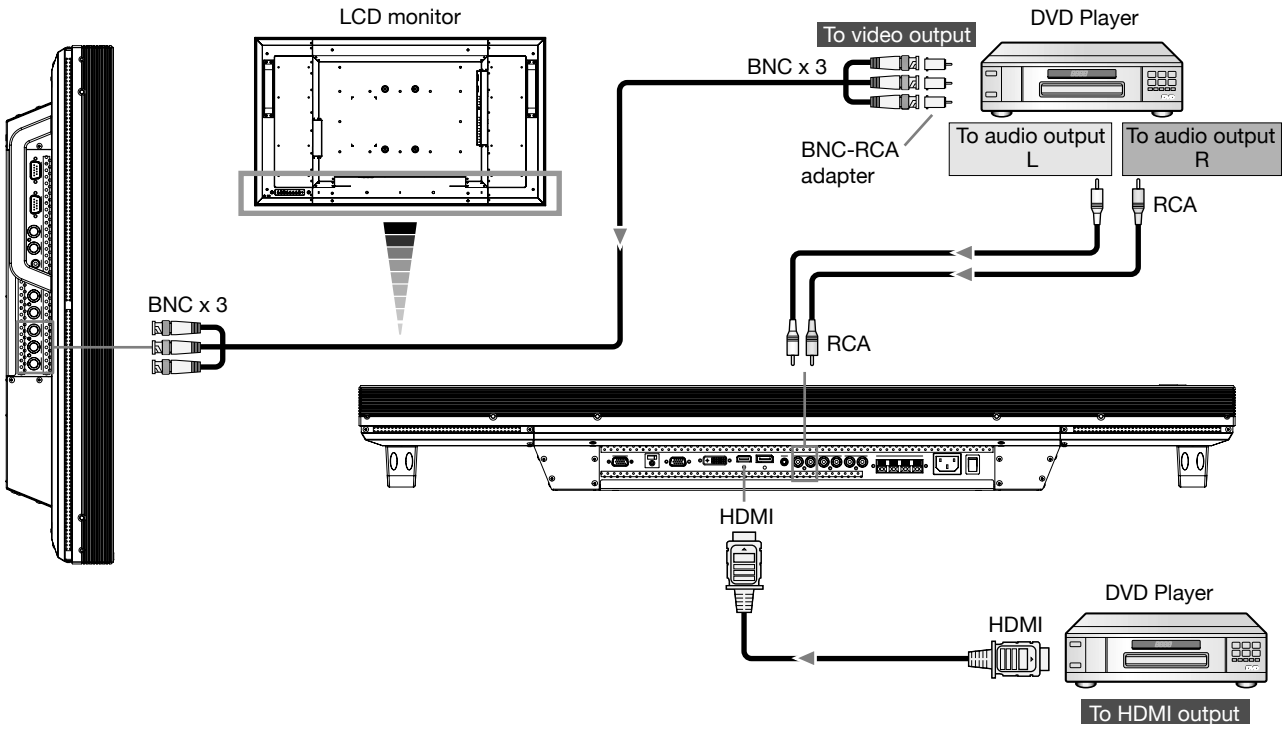


Connecting a DVD Player with component output / HDMI output / DVI output

You can connect DVD players equipped with a component output, HDMI output, and DVI output to your LCD monitor.
Refer to your DVD player owner's manual for more information.

Connect the LCD Monitor to a DVD Player

- To connect a DVD player equipped with a component output to the DVD/HD IN connector (BNC) on the LCD monitor, you may need a BNC connector cable (BNC to RCA adaptor).
  Select "DVD/HD" using the INPUT button on the LCD monitor or the YPbPr button on the remote control.
- To connect a DVD player equipped with an HDMI output to the RGB 1 IN connector (HDMI) on the LCD monitor, use an HDMI cable.
  Select "RGB 1" using the INPUT button on the LCD monitor or the HDMI button on the remote control.
  Set HDMI INPUT MODE to "HDMI-HD." (See page 31.)
- For audio input, select AUDIO IN 1, 2, 3 or HDMI using the AUDIO INPUT button. (HDMI is selectable only when the video input is "RGB 1.")



NOTE:
Operations of the connected HDMI device aren't always guaranteed.

Connecting to a VCR / Stereo Amplifier

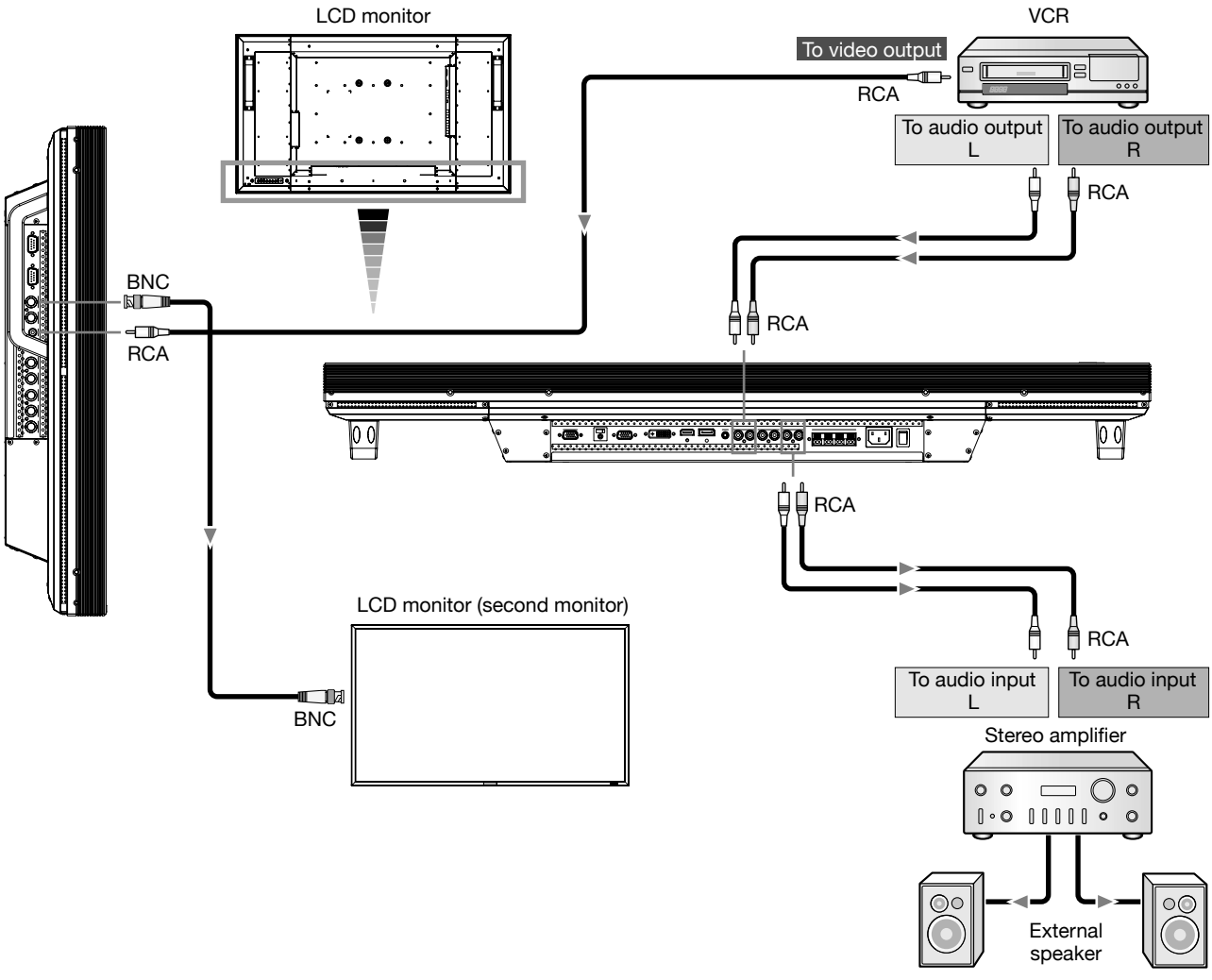
You can connect your VCR / stereo amplifier to your LCD monitor. Refer to your VCR / stereo amplifier owner's manual for more information.

Connect the LCD Monitor to a VCR / Stereo Amplifier

- To connect the VCR to the VIDEO IN connector (RCA, BNC, or S-VIDEO) on the LCD monitor, use a video cable or S-video cable.
  For connection to the AUDIO IN connector on the LCD monitor, use an RCA cable (audio cable).
  Connect the connectors of the RCA cable (audio cable) properly.
  When connecting the VCR to the RCA or BNC connector, select “VIDEO” using the INPUT button on the LCD monitor or the VIDEO button on the remote control.
  When connecting the VCR to the S-VIDEO connector, select “VIDEO<S>” using the INPUT button on the LCD monitor or the VIDEO button on the remote control.
- Before connecting a stereo amplifier to the LCD monitor, be sure to turn off the stereo amplifier.
  For connection to the AUDIO OUT connector on the LCD monitor, use an RCA cable (audio cable).
  Connect the connectors of the RCA cable (audio cable) properly.
  Turn on the LCD monitor first, and then turn on the stereo amplifier.
- The audio input signal selected by the LCD monitor is output from the AUDIO OUT connector.

NOTE:

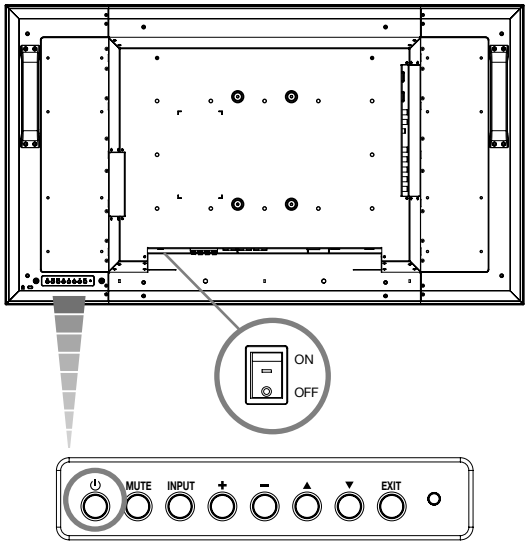
For video signal input, use either of the RCA or BNC connector.



Basic Operation

Power ON and OFF Modes

The LCD monitor power indicator will turn green while powered on or red in off mode. The monitor can be powered on or off using the following three options:



1. Pressing the Main Power Switch.

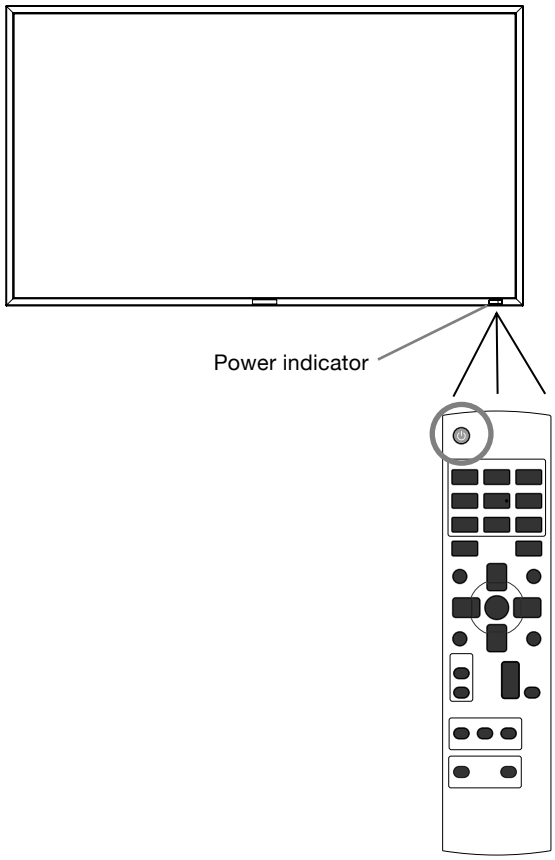
NOTE:

When the Main Power Switch is used to power off the LCD monitor, the remote control and the power button will not activate the on mode and both green and red power indicator turn off. Be sure to turn the Main Power Switch to the on mode before using these two options.

2. Pressing the power button.

NOTE:

Before pressing the power button, be sure to turn on the Main Power button on the LCD monitor.



3. Using the remote control.

NOTE:

Before operating the remote control, be sure to turn on the Main Power Switch on the LCD monitor.

Power Indicator

	Status
Power ON	Green
Power OFF	Red
Power Standby when "SCHEDULE" is enable	Red On Green Blinking
Power Standby	Red, Green
Diagnosis (Detecting failure)	Red Blinking * See troubleshooting on page 38.

Using Power Management

The LCD monitor follows the VESA approved DPM Power Management function.
The power management function is an energy saving function that automatically reduces the power consumption of the display when the keyboard or the mouse has not been used for a fixed period.
The power management feature on your new display has been set to the "ON" mode. This allows your display to enter a Power Saving Mode when no signal is applied. This could potentially increase the life and decrease the power consumption of the display.

Selecting a video source

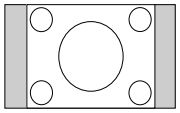
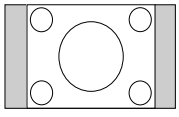
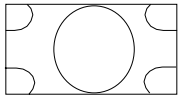
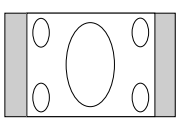
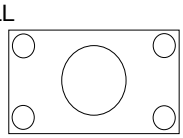
To view a video source:

Use the input button to set [VIDEO].
Use the COLOR SYSTEM menu to set [AUTO], [NTSC], [PAL], [SECAM], [PAL60], [4.43NTSC], according to your video format.

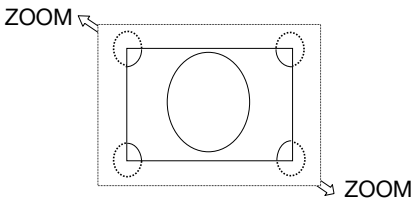
Picture Size

RGB 1, 2, 3, 4, 5, 6: FULL → NORMAL → CUSTOM → REAL →

DVD/HD, VIDEO<S>, VIDEO: FULL → NORMAL → DYNAMIC → REAL → CUSTOM →

Signal Type	NORMAL SIZE	Recommended Size
4:3		NORMAL 
		DYNAMIC 
Squeeze		FULL 

NORMAL: Display the input signal aspect ratio from the PC signal, or display in 4:3 aspect ratio from the DVD/HD or VIDEO signal.
FULL: Display in entire screen.
DYNAMIC: Expand 4:3 pictures to the entire screen with non-linearity. (Some round image will be cut by expansion.)
CUSTOM (ZOOM): Image can be expanded beyond the active display area. The image which is outside of active display area is not displayed.
REAL: Image will be displayed 1 by 1 pixel.



Picture Mode

RGB 1, 2, 3, 4, 5, 6: HIGHBRIGHT → STANDARD → sRGB

DVD/HD, VIDEO<S>, VIDEO: HIGHBRIGHT → STANDARD → CINEMA

Audio Source Switching

You can switch the audio source using the AUDIO INPUT button.

RGB 1, 2, 6: HDMI ↔ AUDIO1 ↔ AUDIO2 ↔ AUDIO3

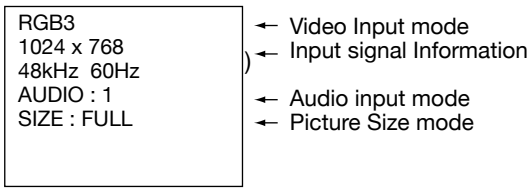
Other than RGB 1, 2, 6: AUDIO1 ↔ AUDIO2 ↔ AUDIO3

Control Lock Mode

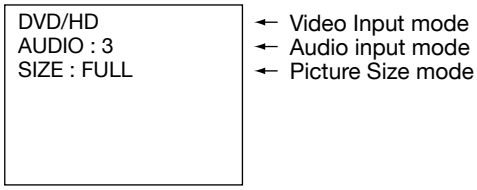
This function disables the operation buttons so that the adjustments you make are not changed when they are pressed.
To disable the buttons, press and hold down the ▲ and ▼ buttons together for at least 3 seconds.
To enable the buttons, press and hold down the ▲ and ▼ buttons together for at least 3 seconds again.

Information OSD

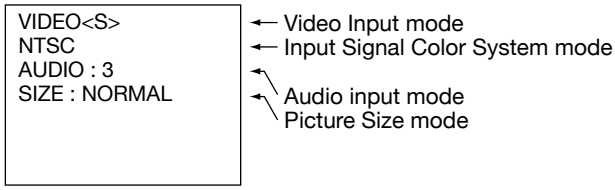
RGB1, 2, 3, 4, 5, 6



DVD/HD



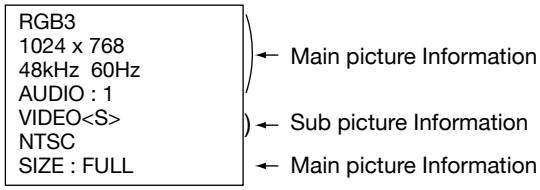
VIDEO<S>, VIDEO



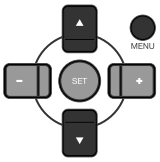
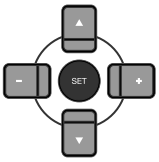
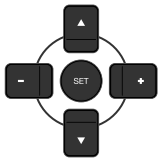
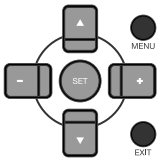
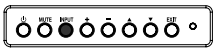
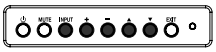
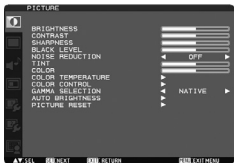
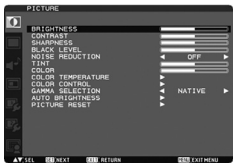
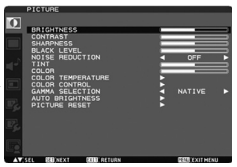
PIP or POP

Main:RGB3

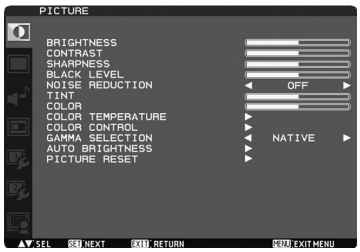
Sub:VIDEO<S>



OSD (On-Screen-Display) Controls

	Press MENU button to open Main menu. Press UP or DOWN button to select sub-menu.	Press SET button to decide.	Press UP or DOWN, and PLUS or MINUS button to select function, or control which you like. Press SET button to decide.	Press MENU or EXIT button to exit.
Remote Control				
	Press EXIT button to open Main menu. Press UP or DOWN button to select sub-menu.	Press INPUT button to enter the selected sub-menu.	After selecting the sub-menu using UP or DOWN button and pressing INPUT button to enter the selected sub-menu, make adjustment using PLUS or MINUS button.	Press EXIT button to go back to the previous menu screen. By pressing EXIT button at Main-Menu, Main-Menu disappears.
Control Panel				
OSD screen				

Main-Menu



PICTURE

■ BRIGHTNESS

Adjusts the overall image and background screen brightness.
Press + button to increase brightness.
Press - button to decrease brightness.

■ CONTRAST

Adjusts the image brightness in relation to the input signal.
Press + button to increase contrast.
Press - button to decrease contrast.

■ SHARPNESS

This function is digitally capable to keep crisp image at any timings.
It is adjustable to get a distinct image or a soft one as you prefer and set independently for each picture mode.
Press + button to increase sharpness.
Press - button to decrease sharpness.

■ BLACK LEVEL

Adjusts the image brightness in relation to the background.
Press + button to increase black level.
Press - button to decrease black level.
NOTE: sRGB picture mode is standard and cannot be changed.

■ NOISE REDUCTION

* : INPUT RGB1 (HDMI INPUT MODE: HDMI-HD), RGB2 (DVI INPUT MODE: DVI-HD), DVD/HD, VIDEO<S>, VIDEO only

Adjusts the noise reduction level.
Press + button to increase reduction level.
Press - button to decrease reduction level.

■ TINT

* : INPUT RGB1 (HDMI INPUT MODE: HDMI-HD), RGB2 (DVI INPUT MODE: DVI-HD), DVD/HD, VIDEO<S>, VIDEO only

Adjust the tint of all color, or red, magenta, blue, cyan, green, and yellow individually.
Press + button the flesh tone color becomes greenish.
Press - button the flesh tone color becomes purplish.

■ COLOR

* : INPUT RGB1 (HDMI INPUT MODE: HDMI-HD), RGB2 (DVI INPUT MODE: DVI-HD), DVD/HD, VIDEO<S>, VIDEO only

Adjust the color saturation of all color, or of red, magenta, blue, cyan, green, and yellow individually.
Press + button to increase color depth.
Press - button to decrease color depth.

■ COLOR TEMPERATURE

Use to adjust the color temperature.
The image becomes reddish as the color temperature decreases, and it becomes bluish as the color temperature increases.

■ COLOR CONTROL

The color levels of red, green, and blue are adjusted by the color bars.
R: Red, G: Green, B: Blue

■ GAMMA SELECTION

Selects a display gamma.
2.2, 2.4, OPTION, S gamma, Native
NOTE: sRGB picture mode is standard and cannot be changed.

Continued on next page.

Continued from previous page.

AUTO BRIGHTNESS

This function controls the screen brightness depending on the ambient light for easy viewing.
In addition, it changes the screen brightness depending on the ambient light and what are displayed on the screen to reduce power consumption as low as possible.

[AUTO BRIGHTNESS]
LOCAL: The auto brightness function is enabled.
REMOTE: The auto brightness function is enabled. In addition, the monitor enters the intercommunication mode where multiple monitors are controlled collectively. (See page 33.)
OFF: This function is disabled.

[CONTROL]
PRIMARY: Select this setting to configure the monitor as Master when controlling multiple monitors collectively.
SECONDARY: Select this setting to use the monitor alone or to configure the monitor as Slave when controlling multiple monitors collectively.

[LIGHT FROM BACK]
YES: Select this setting when there is a light source such lighting equipment and a window behind the monitor.
NO: Select this setting when there is no light source such lighting equipment and a window behind the monitor.

[BACK WALL]
Select the following settings according to the distance between the rear of the monitor and the wall or window.
FAR: The distance is 5 meters or longer.
NEAR: The distance is 5 meters or shorter.

[FRONT SENSOR]
Select ON for normal use.
OFF: Select this setting when the sensor on the front panel is shielded.

[REAR SENSOR]
Select ON for normal use.
OFF: Select this setting when the sensor on the rear panel is shielded.

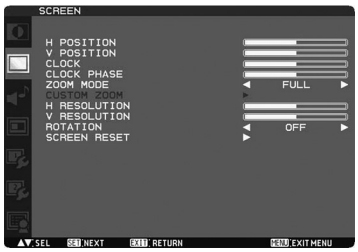
[SATURATION]
ON: The image saturation is adjusted depending on the ambient light.
OFF: Image saturation isn't adjusted.

[VIDEO DETECT]
ON: The screen brightness varies depending on what are displayed on the screen to reduce power consumption of the monitor.
OFF: The screen brightness doesn’t vary and the power consumption isn’t reduced.

PICTURE RESET

Selecting Picture reset allows you to reset all OSD settings about PICTURE setting.
Select “Yes” and press “SET” button to restore to factory preset data.
Press “EXIT” button to cancel and then return to the previous menu.

Main-Menu



SCREEN

H POSITION

Controls Horizontal Image position within the display area of the LCD.
Press + button to move screen to right.
Press - button to move screen to left.

V POSITION

Controls Vertical Image position within the display area of the LCD.
Press + button to move screen to UP.
Press - button to move screen to DOWN.

CLOCK * : INPUT RGB3, 4, 5 only

Press + button to expand the width of the image on the screen the right.
Press - button to narrow the width of the image on the screen the left.

CLOCK PHASE * : INPUT RGB3, 4, 5 only

Improves focus, clarity and image stability by increasing or decreasing this setting.

ZOOM MODE

You can select “FULL”, “NORMAL” and “CUSTOM” and “REAL”. (INPUT RGB1, 2, 3, 4, 5, 6 only) You can also select “FULL”, “NORMAL” “DYNAMIC” and “CUSTOM” and “REAL”. (INPUT DVD/HD, VIDEO<S>, VIDEO only)
Selecting “DYNAMIC” will make the screen display panoramic with the expansion of the middle and outside of the screen changed. (The upper and the bottom of the image will be cut by expansion.)
Dynamic image is the same as FULL size image when HDTV signal is input.
Selecting “REAL” image will be displayed 1 by 1 pixel.

CUSTOM ZOOM

“CUSTOM ZOOM” will be selected when you select “CUSTOM” on the screen “ZOOM” mode.
ZOOM: expands the horizontal and the vertical size simultaneously.
HZOOM: expands the horizontal size only.
VZOOM: expands the vertical size only.
H POSITION: moves to the right with + button. moves to the left with – button.
V POSITION: moves up with + button. moves down with – button.

H RESOLUTION * : INPUT RGB1, 2, 3, 4, 5, 6 only

Adjusts the horizontal size by increasing or decreasing the setting.
Press + button to expand the width of the image on the screen.
Press - button to narrow the width of the image on the screen.

V RESOLUTION * : INPUT RGB1, 2, 3, 4, 5, 6 only

Adjusts the vertical size by increasing or decreasing the setting.
Press + button to expand the height of the image on the screen.
Press - button to narrow the height of the image on the screen.

ROTATION

The OSD screen is rotated.

OFF

H FLIP

Horizontally rotated

V FLIP

Vertically rotated

SCREEN RESET

Selecting Screen reset allows you to reset all OSD settings from PICTURE setting.
Select “Yes” and press “SET” button to restore the factory preset data.
Press “EXIT” button to cancel and then return to the previous menu.

Main-Menu

AUDIO

■ BALANCE

Adjust the balance of L/R volume.
Press + button to move the stereo sound image to right.
Sound of the left side will be small.
Press - button to move the stereo sound image to left.

■ TREBLE

To accentuate or reduce the high frequency sound.
Press + button to increase TREBLE sound.
Press - button to decrease TREBLE sound.

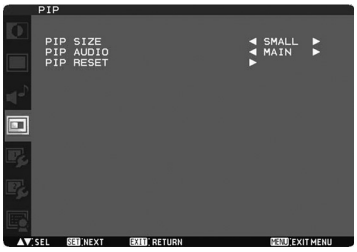
■ BASS

To accentuate or reduce the low frequency sound.
Press + button to increase BASS sound.
Press - button to decrease BASS sound.

■ AUDIO RESET

Selecting Audio reset allows you to reset all OSD settings from AUDIO setting.
Select “YES” and press “SET” button to restore the factory preset.
Press “EXIT” button to cancel and then return to the previous menu.

Main-Menu



PIP (PICTURE IN PICTURE)

Note: The “PIP” and “POP” modes do not function when the screen size is “CUSTOM” or “REAL”.

■ PIP SIZE

Selecting the size of picture inserted at the “Picture-in-Picture” (PIP) mode.
“Large”, “Middle” and “Small” are available.

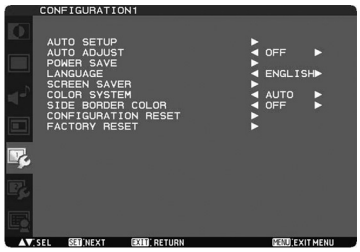
■ PIP AUDIO

Selecting the sound source in PIP mode.
When selecting “MAIN AUDIO”, you will get the sound for the main picture and when selecting “PIP AUDIO”, you will get the sound for the picture instead.

■ PIP RESET

Selecting PIP Reset allows you to reset all OSD settings from PIP setting.
Select “Yes” and press “SET” button to restore the factory preset data.
Press “EXIT” button to cancel and then return to the previous menu.

Main-Menu



CONFIGURATION 1

■ AUTO SETUP

* : INPUT RGB3, 4, 5 only

Press “SET” button to automatically adjust screen size, horizontal position, vertical position, clock, clock phase, white level and black level.
Press “EXIT” button to cancel execution AUTO SETUP and then will return to the previous menu.

■ AUTO ADJUST

* : INPUT RGB3, 4, 5 only

Selecting the auto adjust ON/OFF.
Selecting ON when changing the timing, the horizontal position, vertical position and clock-phase will adjust automatically.

■ POWER SAVE

Selecting RGB “ON”, the monitor will go to power management mode when RGB1, 2, 3, 4, 5, 6 sync is lost.
Selecting VIDEO “ON”, the monitor will go to power management mode after about 10 minutes delay from when DVD/HD, VIDEO<S> and VIDEO input signal is lost.

■ LANGUAGE

OSD control menus are available in eight languages.
(English, German, Spanish, French, Italian, Swedish, Chinese and Japanese)

■ SCREEN SAVER

Select “SCREEN SAVER” functions to reduce the risk of the “image persistence”.
GAMMA: The display gamma is changed and fixed when selected “ON”.
COOLING FAN: The built in cooling fan is always on when set “ON”. When “AUTO” is selected, the built-in cooling fan starts rotating automatically when the internal temperature exceeds the operation guarantee range.
BRIGHTNESS: The brightness is decreased when selected “ON”.
MOTION: Image is slightly expanded and moves 4 directions (UP, DOWN, RIGHT, LEFT) periodically
(Need setting the time for movement).
Movement area is approximately +/- 10mm from original position;
Please locate the important information such as text within 90% area of screen image.
See “IMAGE PERSISTENCE” on page 32 for this function.
PIP and STILL will be disabled when “MOTION” is active.

■ COLOR SYSTEM

* : INPUT VIDEO<S>, VIDEO only

Selecting the Color System depends on your input video format.
AUTO: NTSC, PAL, SECAM, PAL60 or 4.43 NTSC is automatically selected.
NTSC: Specific selection of NTSC.
PAL: Specific selection of PAL.
SECAM: Specific selection of SECAM.
PAL-60: Specific selection of PAL60.
4.43NTSC: Specific selection of 4.43 NTSC.

■ SIDE BORDER COLOR

Use to adjust the brightness of the black areas displayed on both sides of 4:3 image.
OFF, 50, and 100 are selectable.

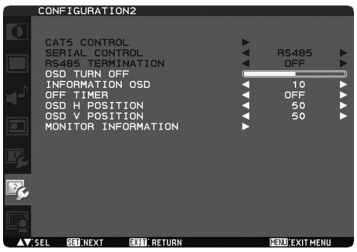
■ CONFIGURATION RESET

Selecting the CONFIGURATION RESET allows you to reset all configuration settings.
Select “Yes” and press “SET” button to restore the factory preset data.
Press “EXIT” button to cancel and return the previous menu.

■ FACTORY RESET

Selecting “YES” allows you to reset PICTURE, SCREEN, AUDIO, CONFIGURATION1,2 and ADVANCED OPTION will be back to factory settings (except LANGUAGE, DATE AND TIME, HDMI INPUT MODE, DVI INPUT MODE, DDC/CI, MONITOR ID and SCHEDULE).
Select “YES” and press “SET” button to restore the factory preset data. Press “EXIT” button to cancel and return the previous menu.

Main-Menu



CONFIGURATION 2

CAT5 CONTROL

* : Selectable only when the optional CAT5 Rx BOX is mounted.

[CAT5 CABLE LENGTH]
Select the cable length, and the defaults of all the adjustment values are automatically determined.
Select the length that is closest to the actual length of your cable.

[CAT5 EQ]
Make adjustment so that blur and smear of the displayed letters and graphic objects are minimized.

[CAT5 R-GAIN, G-GAIN, B-GAIN]
When the displayed image is dark, increase each value.
When whites aren't displayed as intended, adjust the R-GAIN and B-GAIN values.

[CAT5 R-SKEW, G-SKEW, B-SKEW]
Adjust each value so that the color deviation in the displayed letters and graphic objects is minimized.

SERIAL CONTROL

* : Selectable only when the optional CAT5 Rx BOX is mounted.

Select the communication interface (RS232 or RS485) for the serial communication function.
For connection of the signal cable, see page 35.

RS485 TERMINATION

* : Selectable only when the optional CAT5 Rx BOX is mounted.

Turn ON or OFF the termination resistance of the RS-485 interface.
ON: Select this setting to use the monitor alone or to configure the monitor as the one at the end of the connection when more than one monitor is multi-connected.
OFF: Select this setting to configure the monitor as other than the one at the end of the connection when more than one monitor is multi-connected.

OSD TURN OFF

The OSD control menu will stay on as long as it is use. In the OSD Turn Off submenu, you can select how long the monitor waits after the last touch of a button to shut off the OSD control menu.
The preset choices are 5 -120 seconds.

INFORMATION OSD

Selects the information OSD display or not.
The information OSD will display when input signal or source change or warning message like as no-signal or out-of range.
A time between 1 to 10 seconds is available.

OFF TIMER

To select OFF TIMER mode ON/OFF.
In the OFF TIMER menu, you can preset the monitor to automatically power down.
A time between 1 to 24 hours is available.
When the OFF TIMER is set, the SCHEDULE (see page 31) settings will be disabled.

OSD H POSITION

Adjusts the horizontal position of the OSD menu.

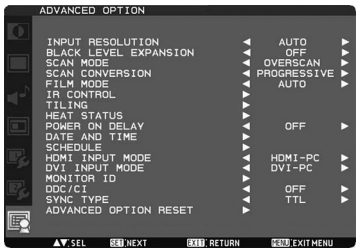
OSD V POSITION

Adjusts the vertical position of the OSD menu.

MONITOR INFORMATION

Indicates the model and serial number of your monitor.

Main-Menu



ADVANCED OPTION

■ INPUT RESOLUTION

* : INPUT RGB3, 4, 5 only

Selects to decision of input signal about below timings, 1024x768, 1280x768 and 1360x768.
AUTO: Determines the resolution automatically.
1024x768: Determines the resolution as 1024x768
1280x768: Determines the resolution as 1280x768
1360x768: Determines the resolution as 1360x768
The setting you select becomes effective when POWER is turned OFF and ON again.

■ BLACK LEVEL EXPANSION

* : INPUT RGB1 (HDMI INPUT MODE: HDMI-HD), RGB2 (DVI INPUT MODE: DVI-HD), DVD/HD, VIDEO<S>, VIDEO only

Selects a level of black expansion from “OFF”, “MIDDLE” and “HIGH.”
In case of go under the black cut-off level, please adjust the “Black level” in moderation on OSD menu.

■ SCAN MODE

* : INPUT RGB1 (HDMI INPUT MODE: HDMI-HD), RGB2 (DVI INPUT MODE: DVI-HD), DVD/HD, VIDEO<S>, VIDEO only

Changes the display area of the image.
OVERSCAN: Set to display area about 95%
UNDERSCAN: Set to display area about 100%
NOTE: When the PIP function is activated, SCAN MODE is forcefully set to OVERSCAN.

■ SCAN CONVERSION

* : INPUT RGB1 (HDMI INPUT MODE: HDMI-HD), RGB2 (DVI INPUT MODE: DVI-HD), DVD/HD, VIDEO<S>, VIDEO only

Selects IP (Interlace to Progressive) converter function.
PROGRESSIVE: Enable the IP function, to convert interlace signal to progressive. Normally use this setting.
INTERLACE: Disable the IP function.

■ FILM MODE

Selects Film mode function.
AUTO: Enable the Film mode function. This mode is better suited for movies, which is converted 24 Frames/sec source to DVD Video. We recommend to select “PROGRESSIVE” in “SCAN CONVERSION”.
OFF: Disable the Film mode function. This mode is better suited for Broadcasting or VCR source.
NOTE: When FILM MODE is AUTO, set SCAN CONVERSION to PROGRESSIVE.

■ IR CONTROL

Selects the operation mode of the wireless remote controller when multiple MDT421S monitors are connected via RS-232C.
Select from the following four modes using the ▲ or ▼ button and then accept the selected mode by pressing the SET button.
NORMAL: The monitor will be controlled normally by wireless remote controller.
PRIMARY: The first MDT421S monitor of those multi-connected via RS-232C is designated as PRIMARY.
SECONDARY: MDT421S monitors other than the first one multi-connected via RS-232C are designated as SECONDARY.
LOCK: Disable the monitor control by infrared wireless remote controller.
Keep pressing “DISPLAY” button during 5 sec or more, this setting will return to “NORMAL”.

■ TILING

TILING demonstrates multiple screens. This feature provides a single large screen using up to 25 monitors.
It will be able to divide up to 5 each H and V.
This requires you to feed the PC output into each of the monitors through a distributor.
H MONITORS: Select number of horizontal divide.
V MONITORS: Select number of vertical divide.
POSITION: Select a position to expand the screen.
FRAME COMP.: Works in tandem with TILING to compensate for the width of the tile bezels in order to accurately display the image.
ENABLE: Select “YES”, the monitor will expand the selected position.
PIP and STILL will be disabled when “TILING” is activated.

Continued on next page.

Continued from previous page.

■ HEAT STATUS

Information of status for COOLING FAN, BRIGHTNESS and TEMPERATURE.
COOLING FAN comes to run when inside temperature is over a guaranteed limit.
In this case warning is displayed on the screen.

■ POWER ON DELAY

Adjusts the delay time from “standby” to “power on” mode.
“POWER ON DELAY” time is selectable from 0-50 seconds.

■ DATE AND TIME

Adjusts the current date and time for internal clock.
You should set this function when you use “SCHEDULE”.

■ SCHEDULE

Programs the monitor's working schedule.
Schedule the power on and power off with hour and a day of the week. Also sets the input port.
This OSD can't remove except EXIT.
(See “HOW TO SETUP SCHEDULE” on page 32.)

■ HDMI INPUT MODE

Select “HDMI-PC” when PC or other computer equipment is connected via HDMI.
Select “HDMI-HD” when DVD player, which has HDMI output, is connected via HDMI.

■ DVI INPUT MODE

Select “DVI-PC” when PC or other computer equipment is connected via DVI-D.
Select “DVI-HD” when DVD player, which has HDMI output, is connected via DVI-D.

■ MONITOR ID

ID numbers for remote control are assigned to MDT421S monitors that are multi-connected via RS-232C.
ID numbers 1 to 26 are selectable.

■ DDC/CI

Use to turn ON or OFF the DDC/CI communication function. Select ON for normal use.

■ SYNC TYPE * : INPUT RGB3, 4 only

Select “0.3V” for 0.3 Composite Sync.
Select “TTL” for TTL Sync.

■ ADVANCED OPTION RESET

Selecting ADVANCED OPTION RESET allows you to reset all OSD settings from ADVANCED OPTION settings, except for DATE AND TIME, SCHEDULE, HDMI INPUT MODE, DVI INPUT MODE, MONITOR ID, and DDC/CI.
Select “YES” and press “SET” button to restore the factory preset data.
Press “EXIT” button to cancel and then return the previous menu.

NOTE

< IMAGE PERSISTENCE >

Please be aware that LCD Technology may experience a phenomenon known as Image Persistence. Image Persistence occurs when residual or “ghost” image of a previous image remains visible on the screen. Unlike CRT monitors, LCD monitors’ image persistence is not permanent, but constant images being displayed for a long period of time should be avoided.

To alleviate image persistence, turn off the monitor for as long as the previous image was displayed. For example, if an image was on the monitor for one hour and a residual image remains, the monitor should be turned off for one hour to erase the image.

As with all personal display devices, MITSUBISHI ELECTRIC recommends displaying moving images and using a moving screen saver at regular intervals whenever the screen is idle or turning off the monitor when not in use.

Please set “POWER SAVE”, “SCREEN SAVER”, “DATE AND TIME” and “SCHEDULE” functions to further reduce the risk of Image persistence.

< For long life use of Public Display >

Image Sticking of LCD Panel

When LCD panel is operated continuously for long hours, a trace of electric charge remains near the electrode inside LCD, and residual or “ghost” image of previous image may be observed. (Image Persistence)

Image Persistence is not permanent, but when a fixed image is displayed for a long period, ionic impurities inside LCD are accumulated along the displayed image, and it is observed permanently. (Image Sticking)

Recommendations

For preventing the fast transition to Image Sticking, and for longer life usage of LCD, the following are recommended.

1. Fixed images should not be displayed for long periods of time, and changed to another images with short cycle.
2. When the monitor is not in use, please turn it off using the remote control, use the Power Management Function or use the Schedule Function.
3. Reducing the environmental temperature is effective for long life use.
   When a Protection board (glass, acrylic) is installed over the LCD surface, enclosed into the box / wall, or the monitors are stacked, please utilize the temperature sensors inside monitor.
   To reduce the environmental temperature, the monitor should be set Low Brightness or Cooling Fan “ON” by using the Screen saver Function.
4. Please use “Screen Saver Mode” of monitor.

< HOW TO SETUP SCHEDULE >

Using the “SCHEDULE” function allows you to set up to seven different scheduled time intervals when the LCD Monitor will be activated.

You can select the time the monitor turns on and turns off, the day of week the monitor is activated, and which input source the monitor will use for each scheduled activation period. A check mark in the box next to the number of the schedule indicates that the selected schedule is in effect.

To select which schedule to set, use the up/down arrows to move the number (1 to 7) of the schedule.

Use the (+) and (-) buttons to move the cursor horizontally within the particular schedule. Use the (▲) and (▼) buttons to increase time and select input port. The “SET” button is used to make a selection.

If you create a schedule but do not want to use a power on time, select “--” in the “ON” time slot.

If you do not want to use a power off time select “--” in the OFF time slot.

If there is no input selected (“--” showing in the input spot) the input from the previous schedule will be used.

The selection of EVERY DAY within a schedule takes priority over other schedules that are set up to operate weekly.

When schedules are overlapping, scheduled Power ON time has priority over scheduled Power OFF time.

If there are two schedules programmed for the same time, then the highest numbered schedule has priority.

When the “OFF TIMER” (see page 29) is set, the “SCHEDULE” function is disabled.

< PIP, POP and SIDE BY SIDE >

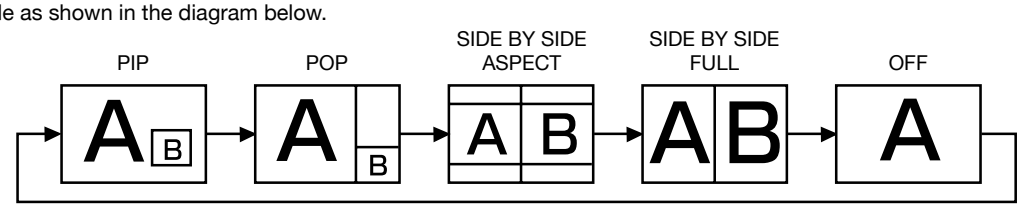
The following table shows the combination of signal inputs under which the “PIP” and “POP” modes function. These modes do not function, however, when the screen size is “CUSTOM” or “REAL”.

SUB / MAIN	RGB1 (HDMI)	RGB2 (DVI-D)	RGB3 (D-SUB)	RGB4 (BNC)	RGB5* (CAT5)	RGB6 (DISPLAY PORT)	DVD/HD (YPbPr)	VIDEO<S>	VIDEO
RGB1 (HDMI)	×	×	×	×	×	×	×	○	○
RGB2 (DVI-D)	×	×	×	×	×	×	×	○	○
RGB3 (D-SUB)	×	×	×	×	×	×	×	○	○
RGB4 (BNC)	×	×	×	×	×	×	×	○	○
RGB5* (CAT5)	×	×	×	×	×	×	×	○	○
RGB6 (DISPLAY PORT)	×	×	×	×	×	×	×	○	○
DVD/HD (YPbPr)	×	×	×	×	×	×	×	○	○
VIDEO<S>	○	○	○	○	○	○	○	×	×
VIDEO	○	○	○	○	○	○	○	×	×

○ : Supported
× : Not supported

* : RGB 5 becomes usable when the optional CAT5 Rx BOX is mounted.

Press the “PIP ON/OFF” buttons on the remote control to change between “PIP”, “POP” and “SIDE BY SIDE” mode as shown in the diagram below.



“PIP”, “POP” mode resolution (Reference)

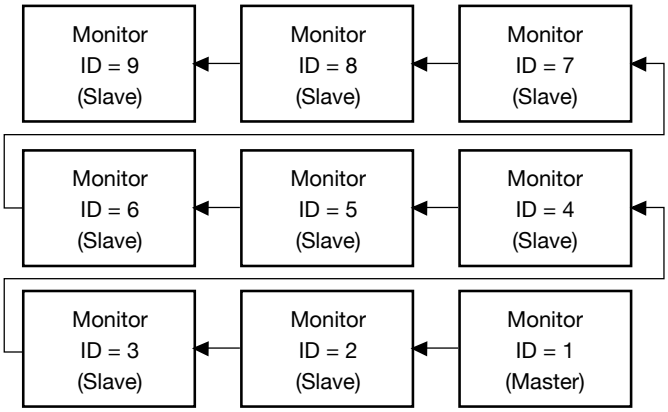
PIP SIZE ◁ SMALL ▷ : 450 pixels X 338 pixels
◁ MIDDLE ▷ : 675 pixels X 450 pixels
◁ LARGE ▷ : 900 pixels X 675 pixels
POP SIZE : 450 pixels X 338 pixels

< Supplemental information of the auto brightness function >

To control multiple monitors collectively

In such a case where the tiling function is used, you can control the auto brightness function by sharing the detection result of the brightness sensor of a certain monitor among the connected monitors.

1. Multi-connect the monitors using RS-232C or CAT5 cables separately sold as shown by the example below.


Monitor ID = 9 (Slave)
Monitor ID = 8 (Slave)
Monitor ID = 7 (Slave)
Monitor ID = 6 (Slave)
Monitor ID = 5 (Slave)
Monitor ID = 4 (Slave)
Monitor ID = 3 (Slave)
Monitor ID = 2 (Slave)
Monitor ID = 1 (Master)

Master: Monitor configured as Master that detects the outside light (Monitor ID is “1”.)
Slave: Monitor controlled by the Master monitor (Monitor ID is other than “1”.)

2. Assign a monitor ID to each multi-connected MDT421S using MONITOR ID. (See page 31.)
   Monitor ID is selectable from 1 to 26.
   The monitor ID of the Master monitor should be “1” and those of the Slave monitors should be other than “1”.
   You are recommended to assign IDs to the monitors consecutively from 1, 2, 3, and on.
3. Set AUTO BRIGHTNESS on the OSD screen (PICTURE) as follows.

	AUTO BRIGHTNESS	CONTROL
Master monitor	LOCAL	PRIMARY
Slave monitors	REMOTE	SECONDARY

To use a computer to control the monitors

When using a computer to control the monitors, you must prepare an application software program for control by yourself.

1. Connect the RS-232C IN connector of the Master monitor shown above and the RS-232C connector of the computer using an RS-232C cable.
   Or, using a CAT5 cable, connect the RS-232C connector of the computer to the CAT5 IN connector of the Master monitor via the CAT5 Tx BOX.
2. Assign a monitor ID to each multi-connected MDT421S using MONITOR ID. (See step 2 on page 33.)
3. Set AUTO BRIGHTNESS on the OSD screen (PICTURE) as follows.

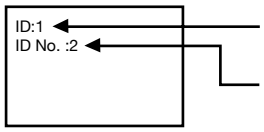
	AUTO BRIGHTNESS	CONTROL
Master monitor	REMOTE	SECONDARY
Slave monitors	REMOTE	SECONDARY

4. For the specifications of the communication commands, contact your dealer.

< Remote control numbering function >

By connecting multiple MDT421S monitors using RS-232C cables, you can control any one monitor or all the monitors by one remote controller.

1. Assign arbitrary ID number to each of multi-connected MDT421S monitors using MONITOR ID.
   ID numbers 1 to 26 are selectable.
   It is recommended to assign sequential ID numbers from 1 and up.
2. The remote control mode of the first MDT421S monitor is set to PRIMARY and those of the other monitors are set to SECONDARY.
3. When you direct the remote controller at the remote control signal sensor of the PRIMARY monitor and press the DISPLAY button on the remote controller, the ID selection OSD appears at the upper left of the screen.



ID number of the currently viewed monitor

Select the ID number of the monitor you want to control using the +/- button on the remote controller.
The ID of the monitor you want to control is displayed at the upper left of its screen.
By selecting ALL, you can control all the multi-connected monitors.

4. Direct the remote controller at the remote control signal sensor of the PRIMARY monitor.
   OSD appears on the monitor having the ID number you selected.

NOTE:

When the ID selection OSD is being displayed on the PRIMARY monitor, press the DISPLAY button on the remote controller again to cancel the ID selection OSD and then control the monitor you selected.

NOTE:

If you set the remote control mode wrongly and remote control operation becomes unavailable, press any button on the control panel of the monitor to display the OSD screen and change the remote control mode using ADVANCED OPTION. By pressing and holding down the DISPLAY button on the remote control for 5 seconds or longer, the remote control mode is initialized to NORMAL.

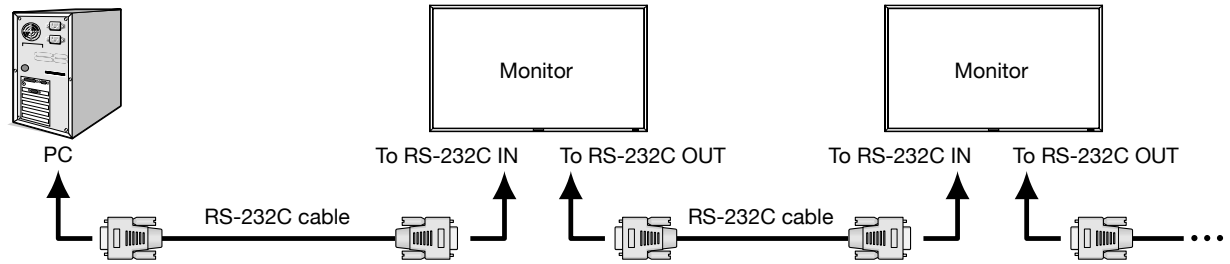
Controlling the LCD monitor via RS-232C/RS-485 Remote Control

This LCD monitor can be controlled by a personal computer connected with an RS-232C cable or a CAT5 cable via the CAT5 Tx BOX (option) and CAT5 Rx BOX (option).
Functions that can be controlled by the personal computer are:

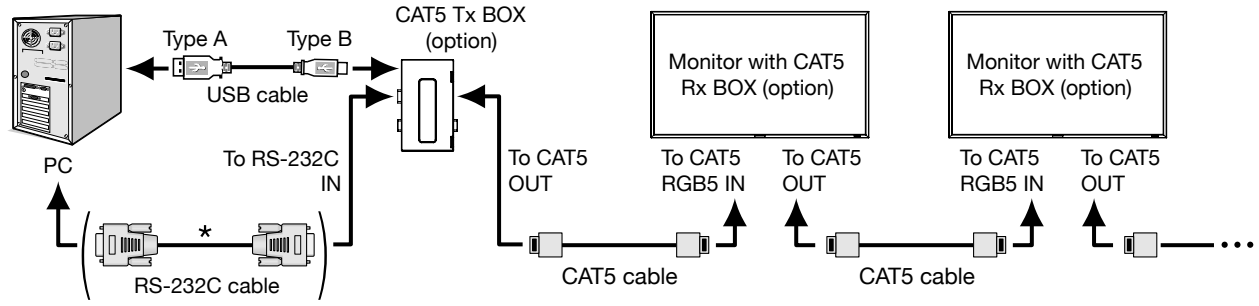
- Power ON or OFF
- Switching between input signals

Connection

Connection by RS-232C (For RS-232C cable, the reverse type cable should be used.)



Connection by CAT5 RS-485 (For CAT5 cable, the straight type cable should be used)



* This connection isn't necessary when the USB COM port is used.

NOTE:

If your PC (IBM or IBM compatible) is equipped only with a 25-pin serial port connector, a 25-pin serial port adapter is required. Contact your dealer for details.

1) Interface

PROTOCOL	RS-232C/RS-485 (CAT5)
BAUD RATE	9600 [bps]
DATA LENGTH	8 [bits]
PARITY BIT	NONE
STOP BIT	1 [bits]
FLOW CONTROL	NONE

This LCD monitor uses RXD, TXD and GND lines for RS-232C control.

2) Control command diagram

The command is structured by the address code, function code, data code and end code. The length of the command is different for each function.

NOTE:

The example below shows basic commands used for the configuration consisting of one computer and one monitor (one-to-one connection). For commands to control multi-connected monitors, contact your dealer in advance.

	Address code	Function code	Data code	End code
HEX	30h 30h	Function	Data	0Dh
ASCII	'0' '0'	Function	Data	↵

[Address code] 30h 30h (In ASCII code, '0' '0') fixed.
[Function code] A code of each fixed control move.
[Data code] A code of each fixed control data (number) and not always indicated.
[End code] 0Dh (In ASCII code, '↵') fixed.

3) Control sequence

(1) The command from a computer to the LCD monitor will be sent in 600 ms.

(2) The LCD monitor will send a return command 600 ms* after it has received and encoded. If the command isn't received correctly, the LCD monitor will not send the return command.

(3) The personal computer checks the command and confirms if the command, which has been sent, has been executed or not.

(4) This LCD monitor sends various codes other than return code. When having a control sequence by RS-232C, reject other codes from personal computers side.

* : The sending time of return command may delay depending on the condition (during changing of the input signal, etc.).

Example: Turn the power ON (' ' is for ASCII code)

Sending commands from the PC	Status code from LCD monitor	Meaning
30 30 21 0D '0' '0' '!' '↵'		Command for POWER ON
	30 30 21 0D '0' '0' '!' '↵'	Command received (Command echoed back)

4) Operation commands

The operation commands execute the basic operation setting of this LCD monitor.

It may not operate when changing the signal:

Operation	ASCII	HEX
POWER ON	!	21h
POWER OFF	"	22h
INPUT RGB 1	_r1	5Fh 72h 31h
INPUT RGB 2	_r2	5Fh 72h 32h
INPUT RGB 3	_r3	5Fh 72h 33h
INPUT RGB 4	_r4	5Fh 72h 34h
INPUT RGB 5*	_r5	5Fh 72h 35h
INPUT RGB 6	_r6	5Fh 72h 36h
INPUT VIDEO	_v1	5Fh 76h 31h
INPUT DVD/HD	_v2	5Fh 76h 32h
INPUT S-VIDEO**	_v3	5Fh 76h 33h

- POWER OFF command should be operated over 1 minute after the power is turned on.
- POWER ON command should be operated over 1 minute after the power is turned off.

* RGB 5 becomes usable when the optional CAT5 Rx BOX is mounted.

** S-VIDEO is SEPARATE only

5) Read command

Host computer sends the command without Data-code to monitor.

After receiving this command, the monitor returns the command with Data-code of current status to host computer.

Example: When Host computer ask Power status of monitor, the status of monitor is powered-on.

Command from computer	Command from Monitor	Detail of command
30 30 76 50 0D '0''0''v''P'[enter]		Ask about the power status of monitor.
	30 30 76 50 31 0D '0''0''v''P''1'[enter]	Monitor is powered-on.

Structure of the Read-command

			ASCII		HEX	
			Function	Data (Receive)	Function	Data (Receive)
POWER	ON		vP	1	76 50	31
	OFF (stand by)		vP	0	76 50	30
Input	RGB-1 (HDMI)		vI	r1	76 49	72 31
	RGB-2 (DVI-D)		vI	r2	76 49	72 32
	RGB-3 (D-SUB)		vI	r3	76 49	72 33
	RGB-4 (BNC)		vI	r4	76 49	72 34
	RGB-5* (CAT5)		vI	r5	76 49	72 35
	RGB-6 (DISPLAY PORT)		vI	r6	76 49	72 36
	Video		vI	v1	76 49	76 31
	DVD/HD		vI	v2	76 49	76 32
	S-VIDEO		vI	v3	76 49	76 33
Picture mode	HIGHBRIGHT		vM	p1	76 4D	70 31
	STANDARD		vM	p2	76 4D	70 32
Temperature of internal monitor	Around Main board	resolution 1 ℃	tc1	(ex.) +25	74 63 31	2B 20 32 35
	Around Power PCB	resolution 1 ℃	tc2	(ex.) +31	74 63 32	2B 20 33 31

* : RGB-5 becomes usable when the optional CAT5 Rx BOX is mounted.

Features

Color Control Systems:

Allows you to adjust the colors on your screen and customize the color accuracy of your monitor to a variety of standards.

sRGB Color Control:

A new optimized color management standard which allows for color matching on computer displays and other peripherals. The sRGB standard, which is based on a calibrated color space, allows for optimal color representation and backward compatibility with other common color standards.

OSD (On-Screen-Display) Controls:

Allow you to quickly and easily adjust all elements of your screen image via simple to use on-screen menus.

Plug and Play:

The Microsoft® solution with the Windows® 95/98/Me/2000/XP operating system and Windows Vista® facilitates setup and installation by allowing the monitor to send its capabilities (such as screen size and resolutions supported) directly to your computer, automatically optimizing display performance.

Intelligent Power Manager System:

Provides innovative power-saving methods that allow the monitor to shift to a lower power consumption level when on but not in use, saving two-thirds of your monitor energy costs, reducing emissions and lowering the air conditioning costs of the workplace.

Multiple Frequency Technology:

Automatically adjusts monitor to the display card's scanning frequency, thus displaying the resolution required.

FullScan Capability:

Allows you to use the entire screen area in most resolutions, significantly expanding image size.

Wall Mounting Interface:

Allows for the monitor to be mounted on a wall or an arm using any third party compliant device. MITSUBISHI ELECTRIC recommends using mounting interface that comply with TÜV-GS and/or UL1678 standard in North America.

TILING, Frame compensation:

Demonstrates multiple screens with an accurate image and compensates for the bezel width.

ZOOM:

Expands the image individually for horizontal and vertical direction.

Self-diagnosis:

When an internal error should occur, a failure state will be indicated.

CAT5 Long Cable Compensation:

CAT5 long cable compensation prevents image quality degradation (color shift and dull signals) caused by long cable lengths.

Troubleshooting

No picture

- The signal cable should be completely connected to the display card/computer.
- The display card should be completely seated in its slot.
- Front Power Switch and computer power switch should be in the ON position.
- Check to make sure that a supported mode has been selected on the display card or system being used. (Please consult display card or system manual to change graphics mode.)
- Check the monitor and your display card with respect to compatibility and recommended settings.
- Check the signal cable connector for bent or pushed-in pins.
- If nothing is displayed on the screen when HDCP device is connected, reset the power of the device.

Power Button does not respond

- Unplug the power cord of the monitor from the AC outlet to turn off and reset the monitor.

Image persistence

- Please be aware that LCD Technology may experience a phenomenon known as Image Persistence. Image Persistence occurs when a residual or “ghost” image of a previous image remains visible on the screen. Unlike CRT monitors, LCD monitors’ image persistence is not permanent, but constant images being displayed for a long period of time should be avoided. To alleviate image persistence, turn off the monitor for as long as the previous image was displayed. For example, if an image was on the monitor for one hour and a residual image remains, the monitor should be turned off for one hour to erase the image.

NOTE:

As with all personal display devices, MITSUBISHI ELECTRIC recommends displaying moving images and using a moving screen saver at regular intervals whenever the screen is idle or turning off the monitor when not in use.

Image is unstable, unfocused or swimming is apparent

- Signal cable should be completely attached to the computer.
- Use the OSD Image Adjust controls to focus and adjust display by increasing or decreasing the fine adjustment. When the display mode is changed, the OSD Image Adjust settings may need to be re-adjusted.
- Check the monitor and your display card with respect to compatibility and recommended signal timings.
- If your text is garbled, change the video mode to non-interlace and use 60 Hz refresh rate.

Image of component signal is greenish

- Check to see if the DVD/HD input connector is selected.

LED on monitor is not lit (no green or red color can be seen)

- Power Switch should be in the ON position and power cord should be connected.
- Make certain the computer is not in a power-saving mode (touch the keyboard or mouse).

RED LED on monitor is blinking

- A certain failure might have occurred, please contact your nearest authorized MITSUBISHI ELECTRIC service facility.

Display image is not sized properly

- Use the OSD Image Adjust controls to increase or decrease the coarse adjustment.
- Check to make sure that a supported mode has been selected on the display card or system being used. (Please consult display card or system manual to change graphics mode.)

Selected resolution is not displayed properly

- Use OSD Display Mode to enter Information menu and confirm that the appropriate resolution has been selected. If not, select corresponding option.

No Sound

- Check to see if speaker cable is properly connected.
- Check to see if mute is activated.
- Check to see if volume is set at minimum.

Remote Control is not available

- Check the Remote Control's batteries status.
- Check if batteries are inserted correctly.
- Check if the Remote Control is pointing at the monitor's remote sensor.

"SCHEDULE"/"OFF TIMER" function is not working properly

- The "SCHEDULE" function will be disabled when the "OFF TIMER" is set.
- If the "OFF TIMER" function is enable and the power to the LCD monitor is turned off if the power supply is interrupted unexpectedly, then the "OFF TIMER" will be reset.

Stripe Noise

Either light vertical or horizontal stripes may appear, depending on the specific display pattern. This is no product fault or degradation.

"NO SIGNAL" is displayed on the screen

Image may not be displayed right after HDCP device is connected.

Specifications

Specifications (MDT421S)

Product Specifications		Analog Input	Digital Input
LCD Module	Diagonal:	42" / 106.7 cm	
	Pixel Pitch:	0.485 mm	
	Resolution:	1920 x 1080 pixels (2070000 pixels)	
	Color:	Over 1.0 billion colors (depending on video card used)	
	Brightness:	700 cd/m^2 (typ.)	
	Contrast Ratio:	1100:1	
	Response time:	9 ms (G to G)	
	View Angle:	Up and Down 178°, Left and Right 178° @CR>10	
Frequency	Horizontal:	15.625 / 15.734, 31.5 - 91.1 kHz	
	Vertical:	50.0 / 58.0 - 85.0 Hz	
Pixel Clock		13.5 - 165.0 MHz	25.0 - 165.0 MHz
Viewable Size		930.3 x 523.3 mm / 36.6 x 20.6 inches	
Input Signal			
PC-Input:	Video:	Analog RGB Video: 0.7 Vp-p Input impedance 75 ohm	TMDS
	Sync:	Separate HV sync: TTL level (Pos./Neg.), Sync-on-green, Composite Sync (0.3 Vp-p) Input Impedance 2.2 K ohm	
	Input-terminal:	BNC (R,G,B,H,V), 15 Pin Mini D-sub	HDMI, DVI-D DISPLAY PORT
VIDEO Input:		Composite: 1.0 Vp-p Input impedance 75ohm BNC and RCA-PINJACK-INPUT Y/C Y: 1 Vp-p C: 0.286 Vp-p Input Impedance 75 ohm S-TERMINAL-INPUT Component: 1.0 / 0.7 Vp-p Input Impedance 75 ohm BNC-INPUT	
AUDIO Input:		RCA PIN-JACK L/R INPUT x 2, STEREO Mini Jack INPUT x 1	
RS-232C:	In:	9 Pin Mini D-sub	
Output Signal			
PC-Output:	Video:	Analog RGB Video: 0.7 Vp-p with 75 ohm terminated	
	Sync:	Separate HV sync: TTL level (Pos./Neg.)	
	Output-terminal:	15 Pin Mini D-sub	
VIDEO Output:		BNC-OUTPUT x 1, Composite 1.0 Vp-p with 75 ohm terminated	
AUDIO Output:		RCA PIN-JACK L/R OUTPUT x 1, 0.15 Vrms with 47k ohm terminated	
Speaker Output:		External Speaker Jack 7 W + 7 W (8 ohm)	
RS-232C:	Out:	9 Pin Mini D-sub	
Resolutions Supported		640 x 480 at 60 Hz to 85 Hz 800 x 600 at 50 Hz, 60 Hz to 85 Hz 1024 x 768 at 50 Hz, 60 Hz to 85 Hz 1280 x 768 at 50 Hz, 60 Hz to 85 Hz 1360 x 768 at 50 Hz, 60 Hz to 85 Hz 1280 x 1024 at 60 Hz to 85 Hz 1600 x 1200 at 60 Hz 1920 x 1080 at 60 Hz* (* : Recommended Resolution) 1920 x 1200 at 60 Hz NTSC,PAL,SECAM,4.43NTSC,PAL60 Component:480i,480p,720p,1080i,1080p	
Power Supply		2.4 - 1.1 A @100 - 240 V AC, 50 / 60 Hz	
Power Consumption		232 W	
	Power Save:	3 W or less (Power button ON/Main power switch ON/Sleep mode) 3 W or less (Power button OFF/Main power switch ON)	
Operational Environment	Temperature:	Landscape: 5 - 40 °C / 41-104 °F, Portrait : 5 - 35 °C / 41 - 95 °F	
	Humidity:	20 - 80 % (Without condensation)	
Storage Environment	Temperature:	-20 - 60 °C / -4 - 140 °F	
	Humidity:	10 - 90% (Without condensation)/90%-3.5%x(Temp-40 °C) regarding over 40 °C	
Dimension	Net:	965.6 mm (W) x 558.6 mm (H) x 115.9 mm (D) / 38.02" (W) x 21.99" (H) x 4.56" (D)	
	Gross:	1130 mm (W) x 709 mm (H) x 280 mm (D) / 44.49" (W) x 27.91" (H) x 11.02" (D)	
Weight	Net:	51.8 lbs / 23.5 kg (Approximately)	
	Gross:	68.3 lbs / 31 kg (Approximately)	
Wall mounting interface		12 Holes (100 mm pitches) Optional Multi-purpose Fix Mount	
Complied Regulatory and Guidelines		UL60950-1/C-UL/EN60950-1/FCC-B/DOC-B/EN55022-B EN55024/EN61000-3-2/EN61000-3-3/C-Tick/CE/BSMI/GOST-R	
Power Management		VESA DPM	
Plug & Play		VESA DDC2B, DDC/CI	
Accessories		User's Manual, Power Cord, Video Signal Cable, Remote Controller, AAA Battery x 2, Clamper x 2 (To prevent from falling), Clamper x 3 (For securing cables), Clamper x 2 (For securing the power cord, HDMI cable, and Display Port cable), Screw for CLAMPER x 2	

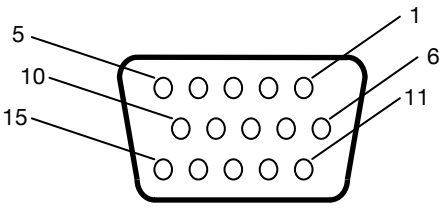
Note: Technical specifications are subject to change without notice.

Pin Assignment

1) Analog RGB input (Mini D-SUB 15P): RGB3

Pin No	Name
1	Video Signal Red
2	Video Signal Green
3	Video Signal Blue
4	GND
5	DDC-GND
6	Red-GND
7	Green-GND
8	Blue-GND
9	+5V (DDC)
10	SYNC-GND
11	GND
12	DDC-SDA
13	H-SYNC
14	V-SYNC
15	DDC-SCL

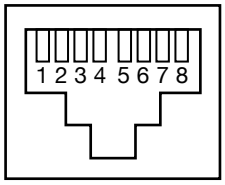
Mini D-SUB 15P



2) Analog RGB input (CAT5): RGB5

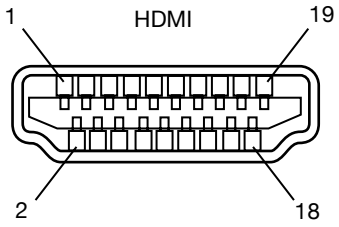
Pin# at RJ45	Signal	Pair
#1	Red Video+	
#2	Red Video-	
#3	Green Video+	
#4	Blue Video+	
#5	Blue Video-	
#6	Green Video-	
#7	RS-485+	
#8	RS-485-	

CAT5



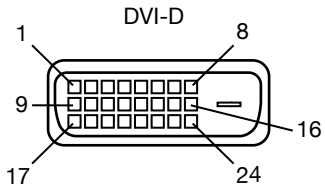
3) Digital RGB input (HDMI): RGB1

Pin - Assignment of HDMI connector:					
1	TMDS Data2+	8	TMDS Data0 Shield	15	SCL
2	TMDS Data2 Shield	9	TMDS Data0-	16	SDA
3	TMDS Data2-	10	TMDS Clock+	17	DDC/CEC Ground
4	TMDS Data1+	11	TMDS Clock Shield	18	+5V Power
5	TMDS Data1 Shield	12	TMDS Clock-	19	Hot Plug Detect
6	TMDS Data1-	13	CEC		
7	TMDS Data0+	14	Reserved (N.C. on device)		



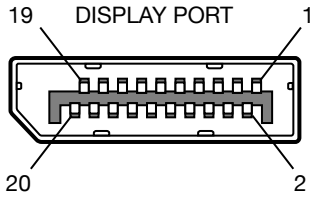
4) Digital RGB input (DVI-D): RGB2

Pin - Assignment of DVI-D connector:					
1	TMDS Data2-	9	TMDS Data1-	17	TMDS Data0-
2	TMDS Data2+	10	TMDS Data1+	18	TMDS Data0+
3	TMDS Data2 Shield	11	TMDS Data1 Shield	19	TMDS Data0 Shield
4	NC	12	NC	20	NC
5	NC	13	NC	21	NC
6	DDC Clock	14	+5V Power	22	TMDS Clock Shield
7	DDC Data	15	Ground (return for +5V, H-SYNC and V-SYNC)	23	TMDS Clock+
8	Analog Vertical Sync	16	Hot Plug Detect	24	TMDS Clock-



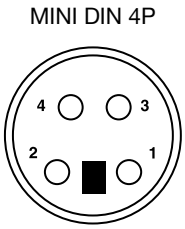
5) Digital RGB input (DISPLAY PORT): RGB6

Pin No	Name	Pin No	Name
1	ML_Lane 3 (n)	11	GND Top
2	GND	12	ML_Lane 0 (p)
3	ML_Lane 3 (p)	13	CONFIG1
4	ML_Lane 2 (n)	14	CONFIG2
5	GND	15	AUX CH (p)
6	ML_Lane 2 (p)	16	GND
7	ML_Lane 1 (n)	17	AUX CH (n)
8	GND	18	Hot Plug Detect
9	ML_Lane 1 (p)	19	Return
10	ML_Lane 0 (n)	20	DP_PWR



6) S-VIDEO input (MINI DIN 4P): VIDEO<S>

Pin No	Name
1	GND
2	GND
3	Y (Luminance)
4	C (Chroma)



7) RS-232C input/output

Pin No	Name
1	NC
2	RXD
3	TXD
4	NC
5	GND
6	NC
7	NC
8	NC
9	NC